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WEEDS TREES & TURF

The magazine of **LANDSCAPE** MANAGEMENT

LANDSCAPE CONTRACTING

Our annual "top 50"

David Kroll, CGCS, inspects one of 18 PennLinks greens at Wilmington CC, Delaware

PennLinks creeping bentgrass – working wonders at Wilmington

New bentgrass variety provides a truer putting surface at Wilmington CC.

When David Kroll, CGCS, was dealt the problem of bentgrass

This Wilmington green was seeded in early '60s with poor quality seed fraudulently labeled Penncross. All the greens deteriorated to the point that they had to be entirely renovated.

deterioration on the greens of this prestigious country club, he called in the experts to help. The greens could not be salvaged, so they were treated with methyl bromide and completely re-greened.

Dr. Joe Duich, Penn State University, suggested seeding with a bentgrass coded PSU 126.

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FEBRUARY 1987, VOLUME 26, NUMBER 2

WEEDS TREES & TURF

The Magazine of **LANDSCAPE** MANAGEMENT

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Cover photo of Northwest Landscape employees by Larry Kassell

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For sale: small businesses

■ A wave of small business sales marked the end of 1986. The Dec. 31 deadline for pre-tax-reform sales prompted a number of business to "dis-incorporate" themselves before the corporate gains tax rate jumped on Jan. 1.

Several larger public companies converted to master limited partnerships to beat the new maximum tax rate of 28 percent, which no longer includes the 60 percent capital gains exemption. The previous law taxed companies on only 40 percent of their capital gains. Therefore, a company in the 50 percent bracket paid 20 percent of income in taxes. These companies are now subject to the flat 28 percent rate.

The new rate marks the first time in decades that the individual's taxes will be lower than corporate, which is why companies are switching to limited partnerships. In this arrangement, profits and losses pass directly to the owners, avoiding the corporate income tax, and paying only the 28 percent top rate personal income tax on earnings: single taxation at lower rates.

U.S. companies attract foreign investors

■ Foreign companies have always shown interest in U.S. chemical companies, but never as much as has been shown recently. Since last summer, at least six sales of U.S. companies to foreign companies have occured. Two of the most recent are the Dutch conglomerate Unilever's $3.1 billion purchase of Chesebrough-Ponds and West Germany's Hoechst AG's $2.7 billion buyout of Celanese.

If pending acquisitions are completed, 20 percent of U.S. chemical interests will be foreign-owned. These include Rhone-Poulenc's recent purchases of Union Carbide's Agrichemical Division and a Monsanto plant. If the present trend continues, fluency in a foreign language may be a necessity.

Economist Ned Howenstine, of the U.S. Department of Commerce, predicted that new foreign investment in 1986 would surpass the 1981 peak. In the first nine months of 1986, Europe accounted for 22 of the 26 sales of chemical companies, Japan for two. Europe accounted for 24 chemical purchases in 1985, and 29 in 1984. More sales were expected before the end of 1986.

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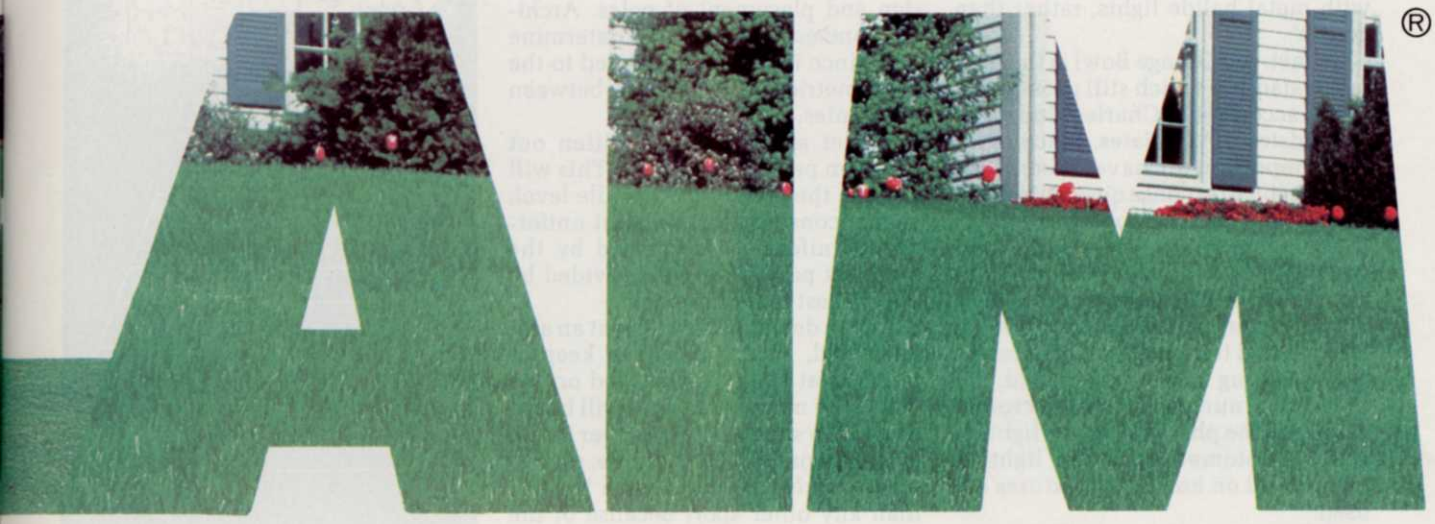

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ATHLETIC TURF

Bright ideas for outdoor sports lighting

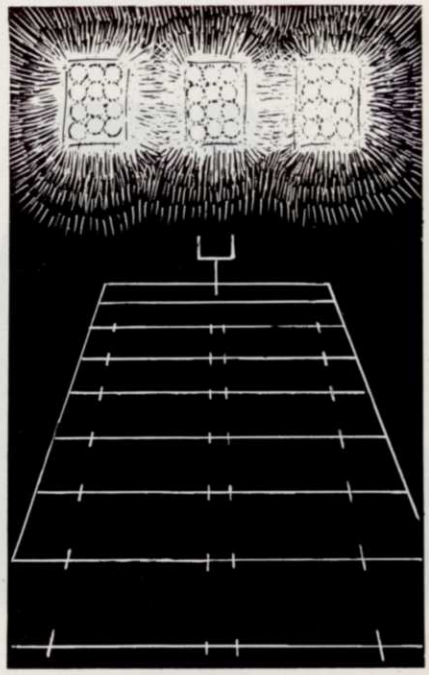
A football game under yellow lighting just isn't as nice as a game under white lights. That's why most fields are lit with metal halide lights, rather than quartz.

In fact, the Orange Bowl is the only major stadium which still uses quartz lights, according to Charles Lindstrom of Lindstrom Associates, Lincoln, Ill. "It's important to have several instantaneous-response quartz lights on a field, however, so people don't panic if the lights go off," Lindstrom told sports turf managers at the North Central Turfgrass Conference.

Lindstrom says it's important to take several things into consideration before setting lights up on a field.

- Ask a number of manufacturers to specify the photometrics or lighting array. Photometrics is the lighting level based on how many fixtures are used.
- Decide what wattage level light to use. Lindstrom reccommends using 1500-watt bulbs for athletic fields and 1000-watt bulbs for tennis courts.
- Ask the manufacturer about design and placement of poles. Architects and engineers cannot determine this, since it is directly related to the photometrics which varies between companies.
- Get specifications written out based on performance only. This will include the type of foot-candle level, energy consumption and best uniformity. Uniformity is defined by the brightest part of the field divided by the darkest part of the field.

When deciding how to light an athletic field, it's important to keep in mind what events are played on the field, how many spectators will be sitting in the stands, and whether it will be taped for TV. For example, professional boxing requires more lighting than any other sport because of the vast number of spectators in the audience.



CONVENTIONS

Landscape Expo draws attendees from 36 states

Initial response to the second annual Landscape Exposition, March 3-5 at the O'Hare Exposition Center in Rosemont, Ill., has drawn interest on both a regional and national scale.

Attendee pre-registration already includes representatives from 36 states. They will come from as far away as Massachusetts and California.

Landscape managers from all corners of the industry will attend.

The Expo will have more than 225 exhibitors and 30 conference sessions covering a variety of subjects. For a more detailed look at the Expo, which is sponsored by WEEDS TREES & TURF and LAWN CARE INDUSTRY magazines, see page 80 in this issue.

LANDSCAPE DESIGN

Magazine to start new feature on design

WEEDS TREES & TURF magazine is beginning a new monthly landscape design feature.

This section will consist of three to six color photos of outstanding landscape design/installation jobs completed by companies throughout the country.

WT&T is now accepting color slides of unique or award-winning projects from landscape contractors and designers. Slides will be returned, if requested.

Projects should be submitted in the following categories: use of annuals for spring or fall color; hardscaping (patios, pools); interiorscaping; creative use of shrubs (texture, shape); aquatic scaping; use of native plant materials (prairie, wildflowers); use of "hard" materials (benches, swings); nightlighting; creative use of trees (spring or fall color, shape, texture); fountain design and surrounding landscape; and winterscaping (evergreens, Christmas lights).

Entire projects, which might not fit into a category above, but demonstrate exceptional landscape design, will also be considered.

Each submission must be accompanied by a description of the project. It should be about one typewritten (double-spaced) page long and should include the following: client's name; designer's and installer's names; awards won; what the client wanted to accomplish; how the designer/contractor interpreted the project; problems; types of plants and hard materials used; cost; time it took; and date completed.

Please send entries to: Heide Aungst, WEEDS TREES & TURF, 7500 Old Oak Blvd., Cleveland, OH 44130.

TREES

New Jersey's TREE program spruces up state's highways

Despite some setbacks, New Jersey's Turnpike Regional Environmental Enrichment (TREE) program won the 1986 National Arbor Day Foundation award for the best state highway concept.

The goal of the five-year project, which was begun in 1985, is to plant three million trees along the 142-mile toll road. The project's aim is to establish enough trees to screen out the industrial sites lining the turnpike.

Jack Salvesen (third from left), director of the Jersey Pride Program, discusses shrub rooting with representatives of some state agencies cooperating in the TREE Project at Johnstone Training and Research Center.

But most of the seedlings planted in 1986—about 40,000—died from the summer's devastating drought. Some trees have had trouble surviving in the poor soil which was brought in as fill when the state built the turnpike.

"It was designed as a five-year project, but with the drought, it may be a 20-year project," says Jack Salveson, director of the TREE program.

To combat the problem this coming summer, Salveson has struck a deal with American Cyanamid, manufacturer of Aquastore, a water-retaining polymer. The company will work directly with the TREE program on test sites involving shrub rooting, tree propogation and bare root seedling transplants using Aquastore.

Another company, Conard-Pyle, will also work with the project in

continued on page 14

ATHLETIC TURF

NTSC finds new home at the USDA

The National Sports Turf Council (NSTC) finally has a place to call home. The NSTC is now headquartered at the USDA's Beltsville Agricultural Research Center in Maryland.

An agreement reached between the groups calls for the Beltsville station to give the NSTC an office, phone, secretarial help, and use of research plots until the council is financially able to support itself. An executive director will be named later this year.

"I see our major role over the next year in pulling together the information available on sports turf and determining research needs and priorities," says the USDA's Jack Murray, who is currently overseeing new headquarters. "We're excited about it."

Murray says the new headquarters will function as a center for information distribution. Research will concentrate on making public park and school system fields safer for young athletes.

The NSTC will contiunue to work closely with related groups such as the Sports Turf Managers Association, the NFL Players Association and PGMS.

"Fred Grau deserves credit in that he has taken a lot of the load and will continue to do so," Murray says. Grau serves as chairman of the NSTC.

Information on safer sports turf can be obtained by writing to: NSTC, USDA/ARS/BARC, Building 001, Room 333, Beltsville, MD 20705.

1-2-3

The most common cause of pesticide accidents is human error, says Dr. William Oberholtzer of Rutgers University. Oberholtzer told the New Jersey Turfgrass Expo that the following procedures will reduce the hazards of pesticide use.

1. Have all employees participate in a safety training program provided in-house, through an extenstion service, or by a company, such as the pesticide manufacturer.

2. Maintain the best protection equipment available including goggles, face shields and respirators. This is not a place to cut costs. Check equipment every day for tears, leaks and broken seams.

3. Use extra precautions in pesticide storage:

- Make sure warning signs are abundant.
- Notify the local fire department as to the placement of the storage building. In case of an accident, they will be aware the fumes are toxic.
- Give the fire department a diagram of exactly where each chemical is stored.
- Place fire extinguishers throughout the storage building in visible locations. Make sure they are the right type for chemical fires. Check them regularly to make sure they work.

4. Check your state laws concerning pesticide disposal and follow them.

5. Make sure all employees are properly prepared for a medical emergency.

Finally, Oberholtzer notes, remember that protecting the public is paramount.

"1-2-3," an article describing pesticide safety "by the numbers," is a regular department of WT&T.

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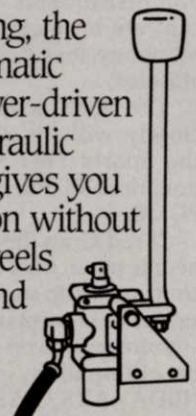

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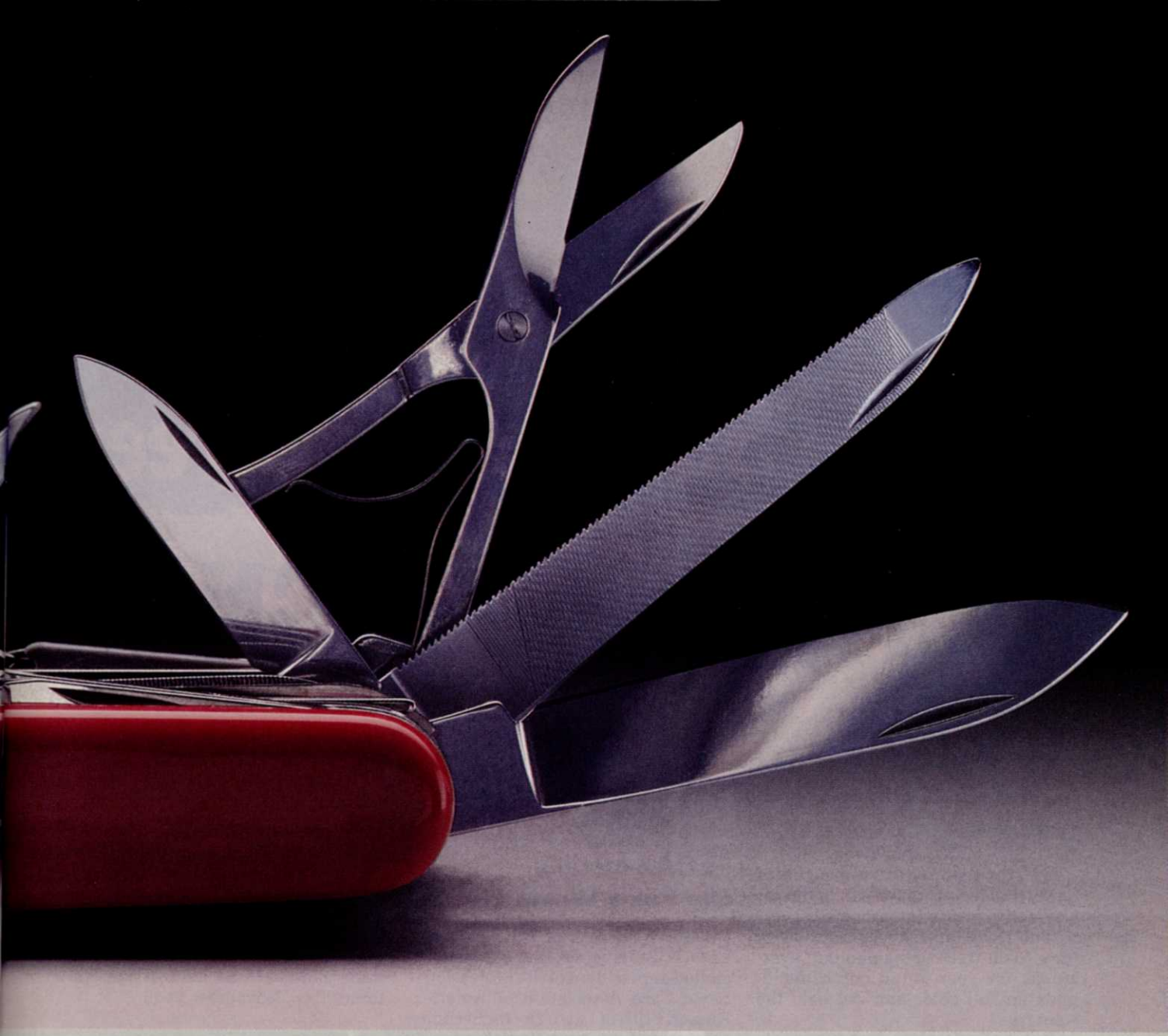

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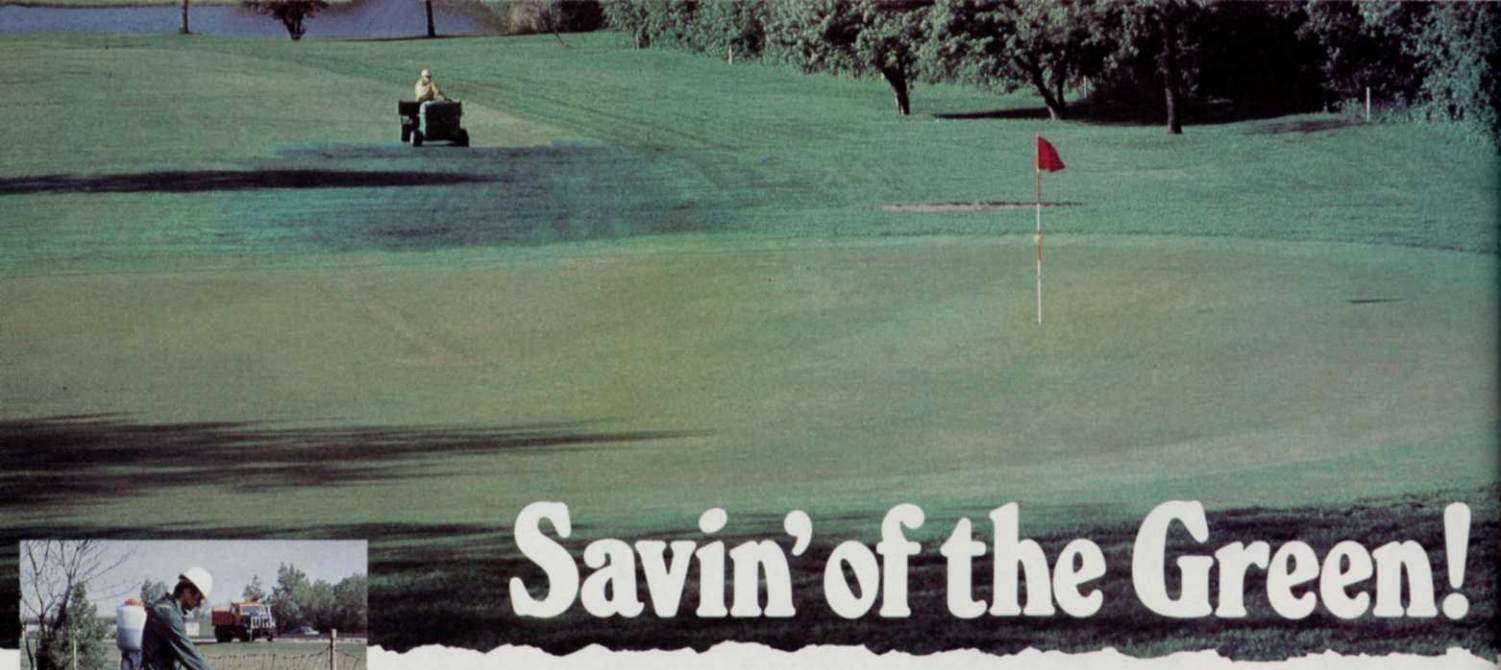

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TREE *from page 11*

-planting demonstration sites of hardy flowering roses on rights-of-way and off-turnpike property.

The TREE project began with more than 6,000 trees being planted: evergreens for year-round color, deciduous for fall color and red oak, the state tree.

But the project has already run into some roadblocks other than the drought.

"We have the growing capacity; it's getting the cooperation," Salveson says.

Lack of cooperation of property owners has been a major setback to the project. Most of the property within view of the highway is privately owned. It's up to the owners to buy the seedlings and plant them.

The state forester offers 1,000 seedlings for $70 and will come in and plant them. But in the midst of the project was a debate over widening the turnpike, which created concern among most property-owners adjacent to the highway.

Salveson is already dreaming up other practical beautification projects, like using state prisoners to plant shrubs in areas directly along the highway, where trees might present a safety hazard.

ASSOCIATIONS

PLCAA installs Old Fox's Wilkinson

Dr. Jim Wilkerson of Old Fox Lawn Care, E. Providence, R.I., has been installed as president of the Professional Lawn Care Association of America. Russell Frith of Lawn Doctor becomes vice-president, and Paul Moore of Lawn Green is secretary-treasurer. Board members include J. Martin Erbaugh of Lawnmark, Dr. Roger Funk of The Davey Co., Jim Mello of Nice'N'Green, David Sek of Monroe Tree and Lawntender, and Joe Windland of Tru-Green.

Ron Giffen, retired vice-president of Lesco, Inc., has been honored by being named *Lawn Care Industry's* 1986 "Man of the Year." The PLCAA has also awarded Giffen an honorary lifetime membership for his years of valuable service to the industry.

Last year's PLCAA show, which was held in Baltimore, Md., set records for both attendance and exhibitors: 158 exhibitors and 1,703 lawn care operators showed up. PLCAA executive vice-president Jim Brooks says the educational program at the show was more sensitive to issues facing the industry.

Brooks received positive feedback on speeches by Dr. Elizabeth Whelan and PLCAA media consultant Ford Rowan, which put the industry's problems into perspective and gave some insight on dealing with them, especially the media.

The 1987 PLCAA convention and trade show will be held in San Antonio, Tex., November 12-15.

CORPORATIONS Clayton & Dubilier buys O.M. Scott

A New York-based company that specializes in leveraged acquisitions will soon do just that to O.M. Scott & Sons of Marysville, Ohio.

Clayton & Dubilier will purchase Scotts and its sister company, W. Atlee Burpee, from the ITT Corp. for $150 million.

"No cash has changed hands, so their influence hasn't been felt yet," says Ron Gagne, director of lawn care services at Scotts. "We don't expect any changes until February, at least. They paid a lot of money for Scotts, so it doesn't seem reasonable that they would pay that much and then cut us back."

Scotts president and chief execu

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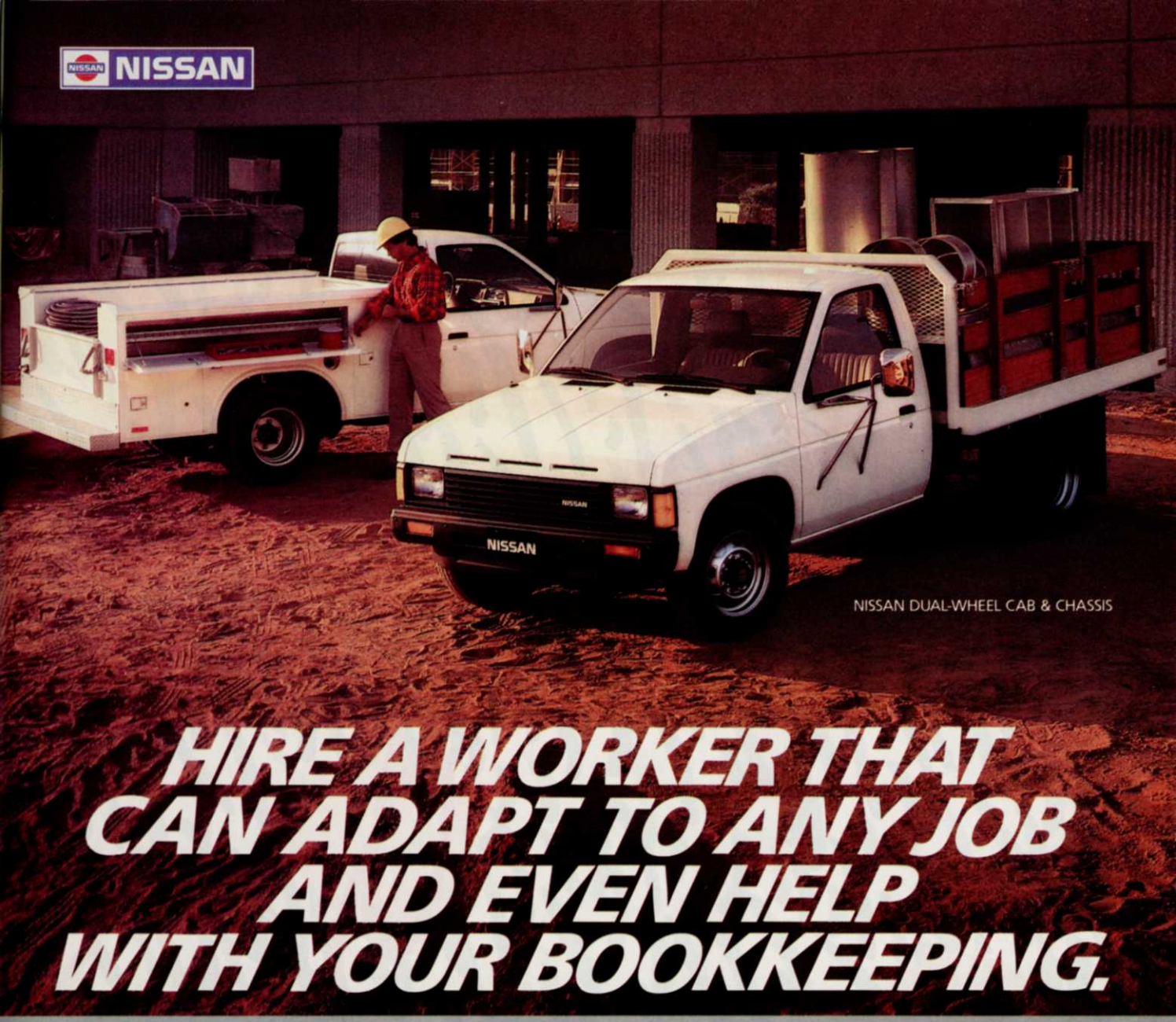

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With Nissan's Dual Rear Wheel Cab & Chassis you have the ideal worker for just about any job. These are partially completed vehicles that can be completed any way you want with a wide range of body types—stake bed, utility body, cargo box, contractor bed—the choice is yours.

BELT YOURSELF

With its Hardbody reliability you can count on keeping your maintenance costs low, and that's something that will really help your bookkeeping. Plus, with its sleek styling, Nissan's Cab & Chassis will give any business the look of success.

Under the hood, there's real power with a fuel-injected, 3.0-liter, overhead-cam V6 with 140 horses. You'll also have a big, 116.1-inch wheelbase and dual rear wheels to help support extra-big loads and a big, 21.1-gallon fuel capacity that lets you stay on the job day and night.

For additional fleet information see your local Nissan dealer today or contact our National Fleet Sales Department at Nissan Motor Corporation in U.S.A., 18501 South Figueroa, P.O. Box 191, Gardena, CA 90247.

When you need a special worker that you can depend on day after day, hire Nissan's Cab & Chassis. The quality is great. The name is Nissan.

FOR VALUE AND TOUGHNESS

THE NAME IS NISSAN

Circle No. 151 on Reader Inquiry Card

Introducing BREAK-THRU:™
A Bold Stroke of Non-Phenoxy Genius . . .
A Masterpiece of Formulation Technology.

The Andersons

For over 20 years, The Andersons has supplied turf professionals with a wide range of quality herbicides, insecticides and fertilizer products.

Symbol of Good Practice
PLCAA
PROFESSIONAL LAWN CARE ASSOCIATION OF AMERICA

The Andersons proudly unveils BREAK-THRU™ . . . the next generation, non-phenoxy herbicide – available today.

BREAK-THRU is the only turf herbicide that will *quickly* and effectively control dandelions without the use of 2, 4-D or other phenoxy herbicides.

In addition, as a non-phenoxy, BREAK-THRU can be sprayed with applicator and customer confidence.

BREAK-THRU is recommended for use on both warm season and cool season turf.

BREAK-THRU in combination with Banvel™ and Turflon,™ industry accepted herbicides, provides broad spectrum weed control at reduced rates. That's a fact, University tested and commercially proven by turf pros just like you.

BREAK-THRU plus Banvel plus Turflon:* Your cost-effective answer to oxalis and spurge control.

BREAK-THRU's unique formulation enhances uniform – on target – distribution of its active ingredient for increased efficiency and *quicker response.*

BREAK-THRU has a low odor, will not leach, and is rapidly and completely degraded in the environment within 1½ to 2 days.

New BREAK-THRU: Available Now.

BREAK-THRU is available exclusively through your Andersons' distributor in 2½, 30 and 55 gallon containers. For the name of your close-by distributor, call The Andersons Product Information Center today. Call toll-free 1-800-225-ANDY.

New Distributors Needed In Selected Areas. Call 1-800-225-ANDY.

BREAK-THRU™

Refining the art of weed control.

™ Turflon registered trademark of Dow Chemical Company.
™ Banvel registered trademark of Sandoz.
™ BREAK-THRU registered trademark of The Andersons.

*Turflon Ester or Amine products only.
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Circle No. 103 on Reader Inquiry Card

SHORTCUTS

THE BEST OF TIMES/THE WORST OF TIMES..... Shaun Gayle, defensive back for the Chicago Bears, told the North Central Turfgrass Exposition (NCTE) that the best field the Bears played on last season was the natural turf at Tampa Stadium...The worst was the artificial turf in the Hubert H. Humphrey Metrodome in Minneapolis. "It has seams this wide," Gayle said, holding his hands an exaggerated two feet apart. Could that be why the Vikings beat the Bears? "I can't remember that far back," quipped Gayle. Now, about those artificial fields: "We would prefer an indoor facility with natural turf," he continued. "But I don't know if anyone's thought of that yet..."

SPEAKING OF THE NCTE..... It was revealed at the NCTE that the University of Illinois-Urbana has the oldest continous research plots in the country. The Morrow plots date back to the late 19th century. The plots are on the United States historical landmark register. An undergraduate library was built underground so as not to disturb the plots.

ARTFULLY ACCOMPLISHED..... Ciba-Geigy, manufacturer of the fungicide Subdue, herbicide Pennant and insecticide DZN, was featured in the December issue of *USAir* magazine. But the article wasn't about chemicals or landscaping. It was about corporate art. Ciba-Giegy has a collection of 540 works of art, mostly abstractionist, displayed at its headquarters in Ardsley, N.Y. (The ag chemical division is based in Greensboro, N.C.) The company started the collection in 1959. Today the collection has been in more than 10 public exhibits.

B.U.G.S., BUT NO BUNNY..... The Biological Urban Garden Services, a news and information service for the organic landscape maintenance industry, has been formed to assist members in gathering and exchanging information on a variety of topics affecting the organic landscape industry. By means of a newsletter, members will be able to ask questions and discuss each other's problems, successes and failures. For information about B.U.G.S., send $1 dollar for postage and handling to Biological Urban Gardening Services, P.O. Box 76, Citrus Heights, CA 95611-0076.

SUMMER EXPERIENCE..... The Los Angeles County Department of Arboreta and Botanical Gardens is offering paid internships emphasizing practical horticultural experience for the summer of 1987. Students enrolled in botany, forestry, horticulture or related courses are eligible and should apply by March 14, 1987. Students will be assigned to one of three public gardens in the Los Angeles area during the 10-week program, which provides hands-on training in nursery management, equipment maintenance, plant propagation, pruning and irrigation installation. Send a resume, three letters of recommendation and a letter describing qualifications to Janice Golden, Department of Arboreta and Botanical Gardens, 301 N. Baldwin Ave., Arcadia, CA 91006.

CORPORATIONS *from page 14*

tive Tadd C. Seitz said that the reestablishment of Scotts as an independent company assures that it will remain in Marysville.

ITT's Lawn and Garden Group—Scotts and Burpee—has grown from $64 million in sales to about $200 million. ITT purchased Scotts in 1971 and Burpee in 1979.

O.M. Scott & Sons manufactures a wide range of fertilizers and pesticides for the turf market.

TECHNOLOGY

Geneticist making strong turf claims

A Canadian geneticist claims his new slow-growing grasses can stop weeds from germinating. Turf industry experts are skeptical.

Jan Wiejer of the University of Alberta claims his fine fescues, bluegrasses, wheatgrasses and others are sturdy, need little care, and grow two to 6½ inches a summer.

A September 15 *Newsweek* magazine article reported Weijer's claims. Weijer told *Lawn Care Industry* magazine that his fine fescues could replace many of those currently on the market. He intends to market 30 to 40 grasses. With the help of a market research study from the university, he plans to introduce two in the near future.

But many turf industry experts disagree with Weijer's claims that his grasses, which are still restricted to Alberta, will adapt to other climates.

"We've had these things come along before, and their adaption is always limited," says Doug Brede, research director for Jacklin Seed Co., Post Falls, Idaho.

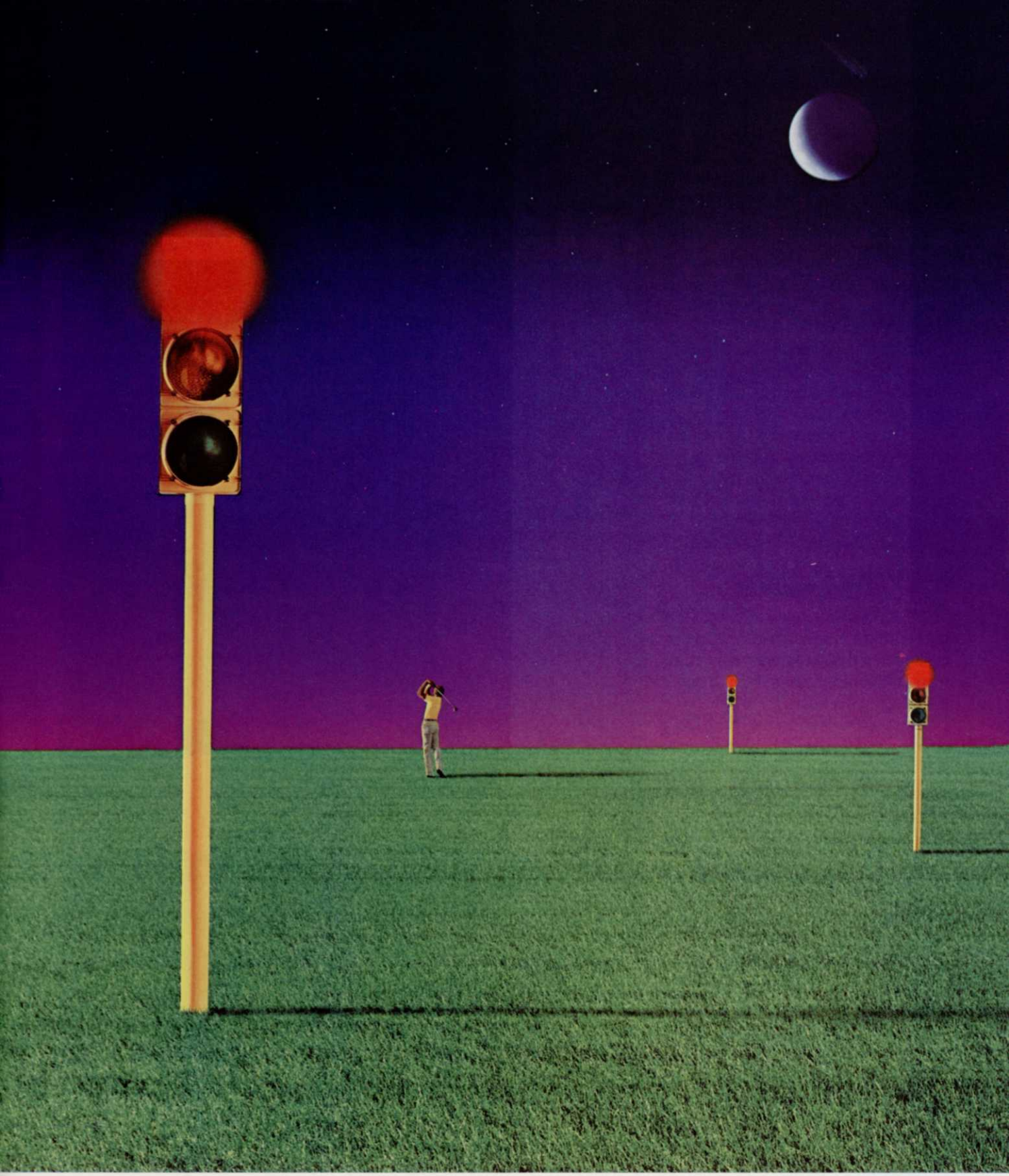
Adds Jerry Pepin, director of research for Pickseed West, Tangent, Ore., "I have a hard time believing any slow-growing grasses from the mountains of Alberta are going to grow well in Cleveland, Santa Ana, and Atlanta. This is not going to be a big factor for the fine turf market in the United States."

PESTICIDES

EPA decides not to ban alachlor

Instead of banning the use of alachlor, the Environmental Protection Agency, after a special review, has opted for limitations to minimize

continued on page 21



Stops leaf spot for less.

®Dyrene 4.

It's the economical new formulation of a proven performer. So now you can keep leaf spot under control. Without your budget getting out of control. DYRENE 4 flowable turf fungicide. The stopper. Mobay Corporation, Specialty Products Group, Box 4913, Kansas City, Mo. 64120

DYRENE is a Reg. TM of Mobay Corporation. 6-2254

Circle No. 143 on Reader Inquiry Card

IT'S HELL ON ORDINARY TRIMMERS.

"We went through a trimmer every six months!" complained Doug Cole of Commercial Lawn, Inc., in Colonial Heights, Virginia.

Even though his crew used the best units from one of the leading lines, a nearby 110-acre cemetery kept knocking them dead.

"The trimmers have to run at full power for the greater part of the day. That's most of the problem. Every six months we could count on a visit to our local power equipment dealer."

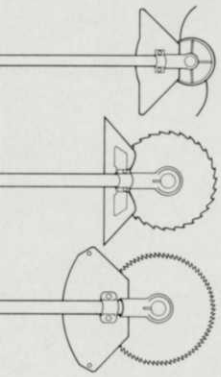
Then, they changed trimmers.

SHINDAIWA BEAT THE GRIM REAPER.

"Our dealer in town talked us into field-testing a Shindaiwa C-35. On the basis of that trial we bought eight trimmers. We've never had to replace one. It's going on five years."

Over pretzels and a cold Bud, Doug and his crew would probably tell you a heck of a lot more.

Like how much more quiet our trimmers are. How light and easy they are to work with. And he'd swear by their easy maintenance features like electronic ignition and easy-on,easy-off diaphragm carbs.



Our entire pro line has interchangeable heads.

ONE PULL WINS YOU OVER.

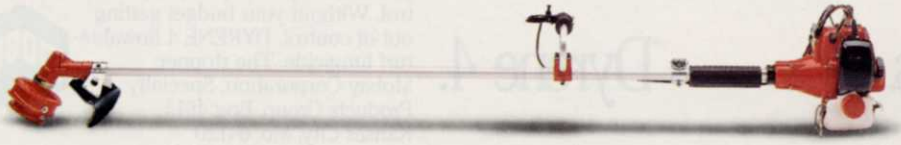
If you're having trouble with your trimmers, field-test a Shindaiwa. You'll likely become a believer from the first pull. Even fresh out of the crate, it starts the first time.

But one pass through a tough stand of Devil's Weed will convince anyone. Our B-45, for example, churns out almost two and a half horsepower from 41.5cc. The T-20 over one horsepower from just 20cc. And the easy power breeds confidence in experienced hands.

WE REST OUR CASE.

Doug's story is no isolated testimonial. We hear the same thing from highway crews, from campus maintenance departments, from farms, stables, and golf courses.

So see for yourself. Field-test one on your own. Before you wind up mourning over an ordinary trimmer.



shindaiwa®

WE SIMPLY MAKE THEM BETTER.

Circle No. 172 on Reader Inquiry Card

health risks from the chemical.

Alachlor, a herbicide for use on crops and woody ornamentals, is produced by Monsanto under the trade name Lasso.

The EPA says that benefits from using the chemical, which has been shown to cause cancer in laboratory animals and possibly in humans, outweigh risks.

New EPA requirements stipulate that only certified workers can apply the chemical, and that the product must remain enclosed during mixing to reduce exposure.

The agency also lifted its ban on aerial spraying of alachlor under the condition that no ground workers remain in the area as "flaggers" to signal cropdusters.

Banning the chemical would have cost farmers between $500 million and $760 million in increased weed control costs and declining crop production.

Estimated sales of the chemical for 1986 are $300 million, or a quarter of Monsanto's agricultural chemical sales.

Concern still exists over the prescence of alachlor in public drinking water. The EPA is expected to propose a maximum contaminant level for the chemical under the Safe Drinking Water Act. The agency estimates that residues from alachlor use could cause cancer in two persons out of a million.

INDUSTRY

Ford reorganizes tractor operations division

With the new year, Ford Motor Company moved to restructure Ford Tractor Operations and New Holland, Inc., into a worldwide unified operation. Coinciding with the restructuring, the company reorganized the tractor operations from a Ford division to a subsidiary, Ford New Holland, Inc., to be run by Robert F. Moglia.

According to the company, the move represents an attempt by Ford to broaden its role in the competitive agriculture and industrial equipment industry.

Three major product components will comprise the new organization: Tractor Operations (FTO), New Holland and Diesel Engine Operations. Tractor Operations produces a variety of agricultural and industrial tractors.

New Holland makes harvesting and haying machinery, along with industrial equipment. Diesel Operations manufactures engines for New Holland machinery, Ford trucks and a number of other manufacturers.

Tractor and diesel operations will be headquartered in Troy, Mich., in the present FTO facilities, while corporate world headquarters will be consolidated in New Holland, Pa., later this year. The parts depot and branch sales office will remain in Troy.

Sales and marketing of Tractor Operations and New Holland will be based in New Holland.

RESEARCH

Nematodes can determine toxicity of chemicals

Nematodes seem to be developing a Jeckyl and Hyde complex lately. The tiny round critters, best known for their relentless attacks on agricultural crops, have a good side, too, researchers have found.

In addition to their recently discovered appetite for grubs, nematodes may also be useful in determining the toxicity of hazardous chemicals.

A Georgia Tech University research project found that reactions of nematodes and rodents were remarkably similar when exposed to eight different metals. The results led the researchers, doctoral student Phil Williams and his advisor, Dr. David Dusenbery, to believe that nematode tests could reduce the necessity for more expensive rodent tests in the future.

Many questions remain unanswered. As a result, the two have applied for a federal grant to study possible differences in tolerance levels between rodents and nematodes, along with other possible variables.

Preliminary research was conducted through a grant from the National Institute of Occupational Safety and Health.

INFORMATION HOTLINE
EIS EDITORIAL INFORMATION SERVICES

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216-826-2839

continued on page 24

AN OFFER THAT MIGHT SAVE YOU MORE THAN MONEY.

If you buy a Shindaiwa C-35, T-25 or T-20 from one of our dealers, we'll send you a set of Shindaiwa Protective headgear free. The hinged face shield and comfortable ear muffs make it easy to wear for long periods. Made in Sweden, a $19.95 value.

Mail this coupon with your original receipt bearing the dealer name to: Shindaiwa, Inc., 11975 S.W. Herman Road, Sherwood, Oregon 97140.

Name _____

Address _____

City _____ State _____ Zip _____

Dealer _____ City _____

(All the above information must be completed. Copies of receipt and coupon not valid. Allow four to six weeks for delivery of headsets. Offer void where prohibited.)

WT

New DURSBAN: No stink, no squawk, no bugs.

New formulation reduces neighbor complaints.

Let's face it. DURSBAN* insecticide used to have a very pronounced air about it. One that could even trigger complaints occasionally.

But no more.

New technology.

DURSBAN Turf Insecticide now contains a more highly purified grade of chlorpyrifos, its active ingredient. And minimizing the impurities has significantly reduced the odor.

Apply without worry.

That means you can apply DURSBAN Turf Insecticide whenever it's needed, even on the hottest days. Without worrying about odor-triggered complaints from neighbors or customers. Applicators, who live with it all day long, will appreciate it, too.

Insect control remains unparalleled.

Your chances of getting called back for re-treatment are slight, too. DURSBAN is famous for effective control of most any surface feeding insect you'll encounter. And for its 6 to 8 weeks of residual control, to catch late-arriving insects.

DURSBAN bonds tightly to organic matter in soil as soon as it dries. So it stays put and keeps controlling. Won't wash away. And you can use it with confidence, because it has a proven human safety record.

First in the industry.

DURSBAN insecticide's first label was for turf applications, indicative of Dow's continuing commitment to the lawn care industry. And DURSBAN has earned the industry's respect for its broad spectrum effectiveness, residual control and cost efficiency...which all add up to today's best insecticide value.

New **DURSBAN** Turf Insecticide is available in 2.5 gallon plastic jugs and 55 gallon drums. If you prefer a wettable powder, you can get the same advantages in DURSBAN 50W, now offered in water soluble packets for the easiest, quickest mixing and measuring ever. Whichever you choose, you'll get fewer complaints—from neighbors, or applicators. Get the full story from your chemical distributor today.

DURSBAN*

The "no offense" insecticide.

DOW*

*Trademark of The Dow Chemical Company

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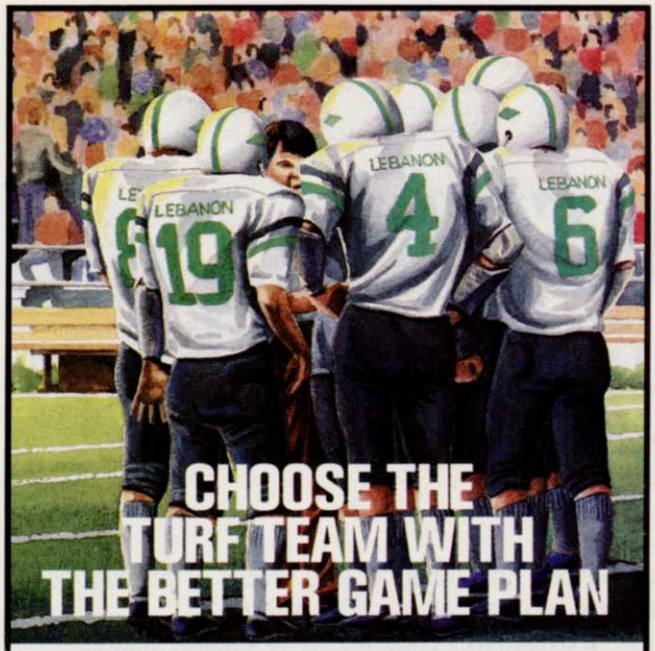
6202

Circle No. 119 on Reader Inquiry Card



LEBANON PREMIUM FERTILIZERS AND TEAM™ CRABGRASS PREVENTER... AN ALL-STAR TEAM YOU CAN WIN WITH EVERYTIME

Lebanon premium fertilizers with Team™ have the defensive strength of benefin and trifluralin, yet they're gentle on your turf. The combination of these proven herbicides kills the seeds of annual bluegrass, smooth and hairy crabgrass, goosegrass, as well as green and yellow foxtail—as they germinate. And our premium quality fertilizers strengthen Northern or Southern turfgrasses.

Pick the right team for you.

You can select the winning Team™ combination that meets your game plan. Choose from our standard line-up, such as **Lebanon Country Club 19-4-6 with Team™ Crabgrass Preventer,** or give us your preferred fertilizer analysis and we will custom blend it with Team™ for you.

Together, one application of **Lebanon** fertilizer with Team™ will give you a winning season against crabgrass and other annual weeds.

For more information on **Lebanon** premium fertilizers with Team™, call our **Greenline** today at 1-800-233-0628, in Pennsylvania, call 717-273-1687. And start getting help with your game plan against crabgrass and goosegrass . . . from the ground up.

Lebanon
TOTAL TURF CARE
A division of Lebanon Chemical Corporation
P.O. Box 180 • Lebanon, PA 17042

Team™ and Diagonal Color Bar are the registered trademarks for Elanco Products Company's combination of benefin and trifluralin.

Circle No. 137 on Reader Inquiry Card

Since nematodes live in a number of habitats, they may be useful in determining contamination both on land and in water. Because they are easier to grow and control, nematode testing is also easier and less expensive to conduct than those using fish and insects.

While Williams says the nematodes would not be used to replace rodents completely, they "can be useful in streamlining the testing process."

PEOPLE

GCSAA associate director embarking on new course

James G. Prusa, GCSAA associate executive director and director of education, will leave his post to concentrate full time on an independent business venture this year. Prusa planned his departure for the beginning of this month, shortly after the completion of the Phoenix show.

James Prusa

Bob Coyner

Bob Earl

Nelson Colvin has been elected 1987 president of the California Landscape Contractors Association. Colvin is vice president of California Landscape, Inc., Canoga Park, Calif.

Lesco has named **Bob Coyner** product manager for spreaders and sprayers. The company has named **Bob Earl** director of stores for Lesco Service Centers.

Darcy Loscutoff

Tom Stanley

Tom Rivers

Jay Glatt, of Turf-Seed, Hubbard, Ore., has retired as vice president and general manager, which he held for eight years, to concentrate on his filbert farm. **Darcy Loscutoff** takes over as general manager. **Tom Stanley** was appointed sales manager, which includes advertising.

Rain Bird Sales, has appointed **Tom Rivers** Northeast second Mid-Atlantic district manager for the Turf Division. Also, **Keith Shepersky** has been appointed product

continued on page 28

Keith Shepersky

Steve Ramig

Ralph Nicotera

Find out how you can run circles around the competition.

The new Vanguard front-mowing, rear-steering riding mower is just the latest reason a Deutz-Allis dealership could be the edge you need in today's lawn and garden market.

Deutz-Allis has the only lineup that includes these maneuverable front-mowing riders along with a full line of compact diesel tractors, lawn and garden tractors, rear-engine riding mowers, walk-behind mowers and snow throwers.

With Deutz-Allis you can offer a full line of the highest quality equipment, and deal with a single responsive source for retail credit, parts, service, advertising and merchandising assistance.

The Deutz-Allis line of under 40 hp diesel tractors is positioned to take full advantage of the present rapid growth in the market, offering both hydrostatic and synchronized gear models beginning at 14 pto horsepower. Consumer products line ranging from 8 to 20 hp includes many other exciting and popular models like the "Ultima" garden tractors.

So no matter what the competition does, you've got them surrounded with a complete line of rugged, top quality equipment, very competitively priced to bring you top profit margins.

Give us a call or fill out and mail the coupon below for more information.

West of the Mississippi, call: 816-478-0824. East of the Mississippi, call: 614-890-1029.

For information on Deutz-Allis Lawn and Garden Dealerships, fill out and mail to: Lawn and Garden, Dealership Development, Deutz-Allis Corporation, Box 933, Milwaukee, WI 53201.

Name _____

Name of Business _____

Address _____

City _____ State _____ Zip _____

Phone _____

KHD DEUTZ ALLIS

When you think green, think Deutz-Allis.

6404

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LESCO TRACKER

SPRAY DYE INDICATOR

- See where you spray
- Eliminate skip and overlapping
- Detect clogged nozzles
- Save time, material and money
- Environmentally safe

Tracker...the new non-hazardous blue spray dye indicator from LESCO. Whether you're spraying acres of fairways, renovating a turf area or treating weeds in a home lawn, choose Tracker. A versatile product with a multitude of uses.

Call toll-free to order.

(800) 321-5325 NATIONWIDE

(800) 362-7413 IN OHIO

LESCO

LESCO, Inc., 20005 Lake Road, Rocky River, Ohio 44116 (216) 333-9250

Circle No. 138 on Reader Inquiry Card

ger for the turf division. He will act as liason between marketing and engineering groups concerning new product development.

Jacobsen Division of Textron announces the appointments of **Steve Ramig** and **Ralph Nicotera** as national sales managers for commercial products and turf products, respectivley. Ramig has been with Jacobsen since 1977, Nicotera since 1974.

Bud Camp

Patrick Harrigan

Douglas Brede

Bud Camp has been named senior sales representative for the Midwest division of **Lebanon Chemical**. Lebanon also announced the following staff changes: **J. Mark Nuzum** was promoted to manager/agronomist of Lebanon's Tidewater Agricorp subsidiary. **Kevin C. Hoffman** was named market development coordinator at Lebanon's headquarters. **Timothy C. Layman** was named sales representative for Lebanon's Division 34.

Patrick A. Harrigan has joined Outdoor Equipment Co. as sales representative for turf products. He will be responsible for central Illinois and northern Missouri.

Wayne Ennen, international sales manager for Chevron Chemical, was elected chairman of the Western Agricultural Chemicals Association Board of Directors. **Ken Smith**, district sales manager for the Wilbur-Ellis Co., was elected vice-chairman, and **Jack Leach**, assistant regional sales manager for Stauffer Chemical Co., was elected secretary.

Jacklin Seed Co. has named **Dr. Douglas Brede** research director. Brede had been an associate professor of turfgrass management at Oklahoma State University prior to joining Jacklin.

Jay Inglis

Joe Silva

Robert Martin

Fermenta Plant Protection announces the following staff changes: **J.N. Butler** has been named Southern area sales manager. **Joseph A. Ignatoski** was appointed Northern area sales manager. **George N. Chism** has been appointed Western area manager.

W. Donald Sifton has been named divisional project manager for Assert and AC 263,499 (Pursuit) herbicides for Cyanamid International Agricultural Division. Sifton joined the company in 1978.

Hunter Industries has named **Jay Inglis** technical services manager. The company also appointed two southern California sales representatives. **Joe Silva** will be regional manager for Los Angeles, Orange, Kern and Ventura

continued on page 28

A New Turf Care Formula!

Two Well Proven Fungicides Together Add Up To Maximum Disease Control.

VORLAN™ is the product of choice by superintendents, professional lawn care operators and landscapers for the control of Leaf spot, Dollar spot, Red thread and Pink snow mold.

FUNGO® is the standard for control of the ever increasing problems of Brown Patch and Anthracnose.

This tank mix affords you the unequaled disease control, plus, the economy of a single spray at reduced rates.

A one ounce each application of VORLAN and FUNGO tank mix can prevent these six major diseases.

1. Leaf spot
2. Melting out
3. Dollar spot
4. Brown patch
5. Red thread
6. Anthracnose

Without VORLAN and FUNGO your disease control program just won't add up. Contact your local Mallinckrodt distributor today.

Mallinckrodt®

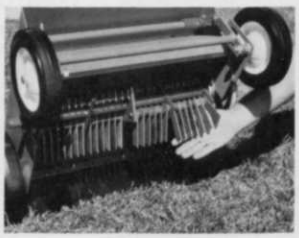
P.O. Box 5439
St. Louis, MO 63147
(800) 325-7155

Get the thatch out before you fertilize

Don't fertilize the thatch

Turf experts agree that, after a hard winter, excessive thatch must be removed in order to have a healthy turf in the spring and summer. Nutrients are merely absorbed into the **thatch** and don't reach down into the **roots** if the thatch build-up is not removed.

knife reel



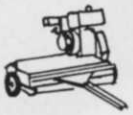
flail reel

BlueBird Lawn Combers are the largest selling and most customer-accepted power rakes for removing thatch — worldwide. With a BlueBird model for every type of lawn, and spacings for every application, it's no wonder BlueBird is Number One. Interchangeable **flail reels** and **knife reels** are available in BlueBirds for vertical mowing, and together they answer every need of lawn service professionals in all parts of the country.

F-20

F20B,

400 Catcher model



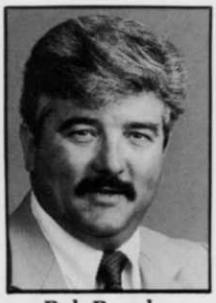
Towable model

Call your distributor today for a BlueBird catalog. Take advantage of the whole BlueBird line — all **professional** models because they're the **best built** power rakes in the industry. For the name of your distributor call the BlueBird Action Center, 2778 South Tejon, Englewood, Colorado 80110. Phone (303) 781-4458. Today!

BlueBird International®

Circle No. 105 on Reader Inquiry Card

counties; and **Robert Martin** will be sales and marketing representative for those same counties.



Bob Brophy

Bob Brophy has been appointed to the new position of manager, lawn care product sales for OMC Lincoln. He has been with the company for 11 years.

Dr. Paul Tilford executive secretary of the National Arborists Association from 1940 to 1965, passed away last December. The Tilford family requests donations be made in his memory to the Paul Tilford National Arborists Foundation, 174 Route 101, Bedford, NH 03102.

STADIUMS

New Dolphin Stadium to get Prescription Athletic Turf system

Southern Turf Nurseries, Norcross, Ga., has been contracted to install the P.A.T. (Prescription Athletic Turf) system in the new Dolphin Stadium in Miami. The stadium will be ready when the 1987 season opens in August.

The P.A.T. surface is the same as that used in the Orange Bowl, the Dolphins' former home stadium. The National Football League team decided to move to the new stadium, however, because the Orange Bowl lacked sufficient parking, concession areas and restrooms.

The P.A.T. system offers safety and provides for removal, conservation and addition of water. Pumps attached to drain lines will draw excess water away from the playing surface. The irrigation system has sensing controls which automatically add surface or subsurface water with high energy efficiency.

INDUSTRY

Environmental Industries adds company to maintenance division

Environmental Industries, Inc., will add Botanical Concepts to the Interiorscape division of Environmental Care, Inc., the parent company's maintenance division.

Botanical Concepts, based in Colorado Springs, does interior landscape contracting, including design, installation and long-term maintenance for a variety of facilities. Botanical's founder, Debbie R. Drury, will continue in a management role.

According to Bruce Wilson, president of Environmental Care, the addition will enable the division to increase its market share of the interior landscape business in the Colorado Springs area.

Environmental Care also provides exterior landscape maintenance and mature tree care services. Other divisions in the parent company operate landscape construction and tree growing services.

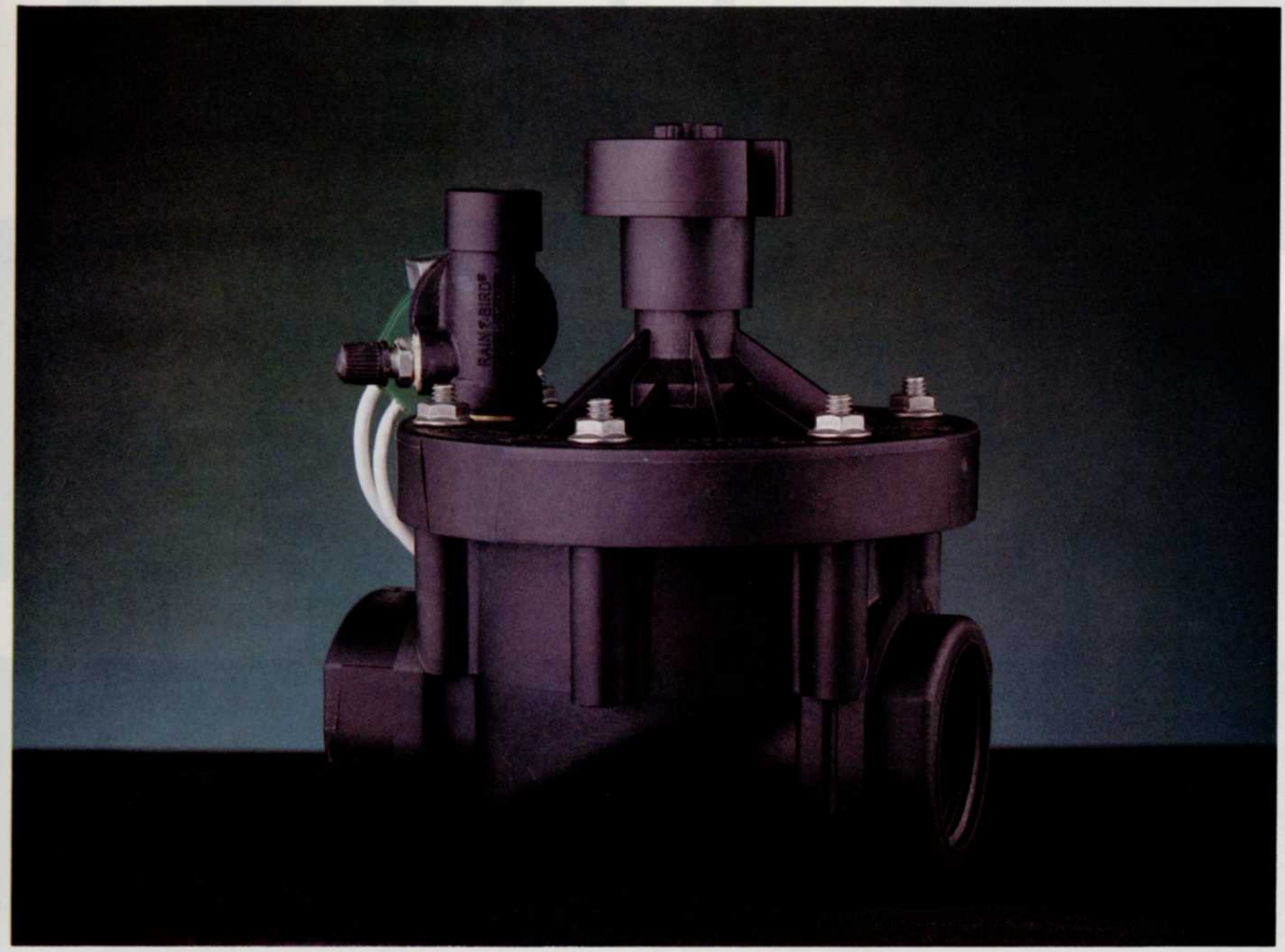
INDUSTRY

Changes in geotextile industry for Du Pont and Nicolon

The Du Pont Company has completed the sale of its worldwide business for "Reemay" spunbonded polyester and the United States-based business for "Typar" spunbonded polypropylene to the InterTech Group affiliate Reemay, Inc.

continued on page 32

The Premier Plastic Valve...



The PE Series Valves

When the specs call for the ultimate in performance and durability, call on Rain Bird's new PE Series valves.

These new 1", 1½" and 2" model valves offer the strength and security of brass at the price of plastic. Made of heavy-duty, corrosion-resistant plastic, the PE Series features low pressure loss design and an industry-high operating pressure rating of 200 psi.

And, all PE Series valves are available with an optional pressure-regulating module for energy efficient operation and uniform water distribution.

From Rain Bird, the premier name in brass valves, comes plastic valves to be proud of—the PE Series.

RAIN BIRD®

For more information write:
Rain Bird Sales, Inc., Turf Division, 145 N. Grand Ave., Glendora, CA 91740

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Fall I
With A

I Love Gravely

Ninety-six percent of the professionals, commercial users and homeowners we talked to told us they love the way their Gravelys perform. Go to a Gravely dealer to test a riding tractor, two-wheel tractor or our Pro Series today. And fall in love with a Gravely. GRAVELY®

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GSA# 07F13713 • HUD# HC-17095

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Included in the sale were manufacturing facilities at Old Hickory, Tenn., associated product patents, technology and inventories. The European-based business and manufacturing facility for "Typar" was not included in the sale.

InterTech will retain most of the 375 Du Pont employees of the Old Hickory plant.

In addition, the Nicolan Corporation expanded and redesigned its line of "Armorform" revetment forming fabrics and is now offering it through the newly formed firm Texicon, with offices in Atlanta and Cleveland. Texicon has been appointed the exclusive U.S. representative for the products.

The new firm was established by fabric industry veterans Donald C. Dominske and Bruce Lamberton, formerly with Intrusion-Prepakt.

CHEMICALS

Riverdale gets label for post-emergency

Riverdale Chemical Company, Chicago Heights, Ill., has received EPA issuance of a product registration for Weedestroy Tri-Ester, a three-way, post-emergence selective broadleaf herbicide.

The product contains esters of 2,4-D, mecoprop and dichlorprop, and is made for use on golf courses, parks, rights-of-way, sod farms, ornamental turf lawns and other non-crop areas.

According to the company, the herbicide resists washing from plants, has a greater herbicidal activity than the amine form, and can be used during cool weather, either later or earlier in the season.

GOVERNMENT

FDA lax in checking food for pesticide traces

According to a report from the General Accounting Office, the Food and Drug Administration rarely tests domestically grown food for pesticides, and stops the sale of the tainted food even less, the *New York Times* reports.

The GAO report stated that because the agency cannot monitor all food possibly containing illegal amounts of pesticide residues, it relies on spot testing of no more than one percent of domestically grown agricultural products as a deterrent.

In addition, those found to be selling tainted products are rarely penalized, the report continues.

The GAO report recommends that FDA create guidelines for testing and suggests the agency petition Congress for the authority to slap perpetrators with civil penalties.

FDA does not have legal authority to hold domestic food while court action is being taken to remove it from the market. The agency relies on slow and expensive criminal suits against growers.

FDA has yet to take action on the report, according to the agency.

INDUSTRY

Seed contractor markets improved varieties

Cascade-International Seed Company, a new seed contractor based in Tulatin, Ore., plans to be a primary contractor and marketer of a number of improved seed varieties.

The company, a subsidiary of Jonathan Green & Sons, Farmingdale, N.J., will supply the parent company and other companies, and market Jonathan Green's new varieties. Those varieties include Mesa turf-type tall fescue and Destiny Kentucky

continued on page 36

NEW TURF-TYPE TALL FESCUES

Now, more than ever the choice of professionals.

Join the rapidly growing number who select Tall Fescue for:

- *rich, dark green dense turf*
- *low maintenance*
- *soil and climate adaptability*
- *tolerance to shade and cold*

- *tolerance to heat and drought*
- *resistance to disease*
- *durability and longer wear*
- *year-round beauty and performance*

***Oregon Turf Type Tall Fescue** has all the superior qualities you want and need: beauty and rugged stability. Demand the perfect choice for low maintenance turf, ideal for playing fields, parks, home lawns, airfields, roadways, industrial and commercial sites and more.*

For more information contact your seed dealer, or write to:

OREGON TALL FESCUE COMMISSION

2140 Turner Rd. SE., Salem, Oregon 97302

Phone (503) 585-1157

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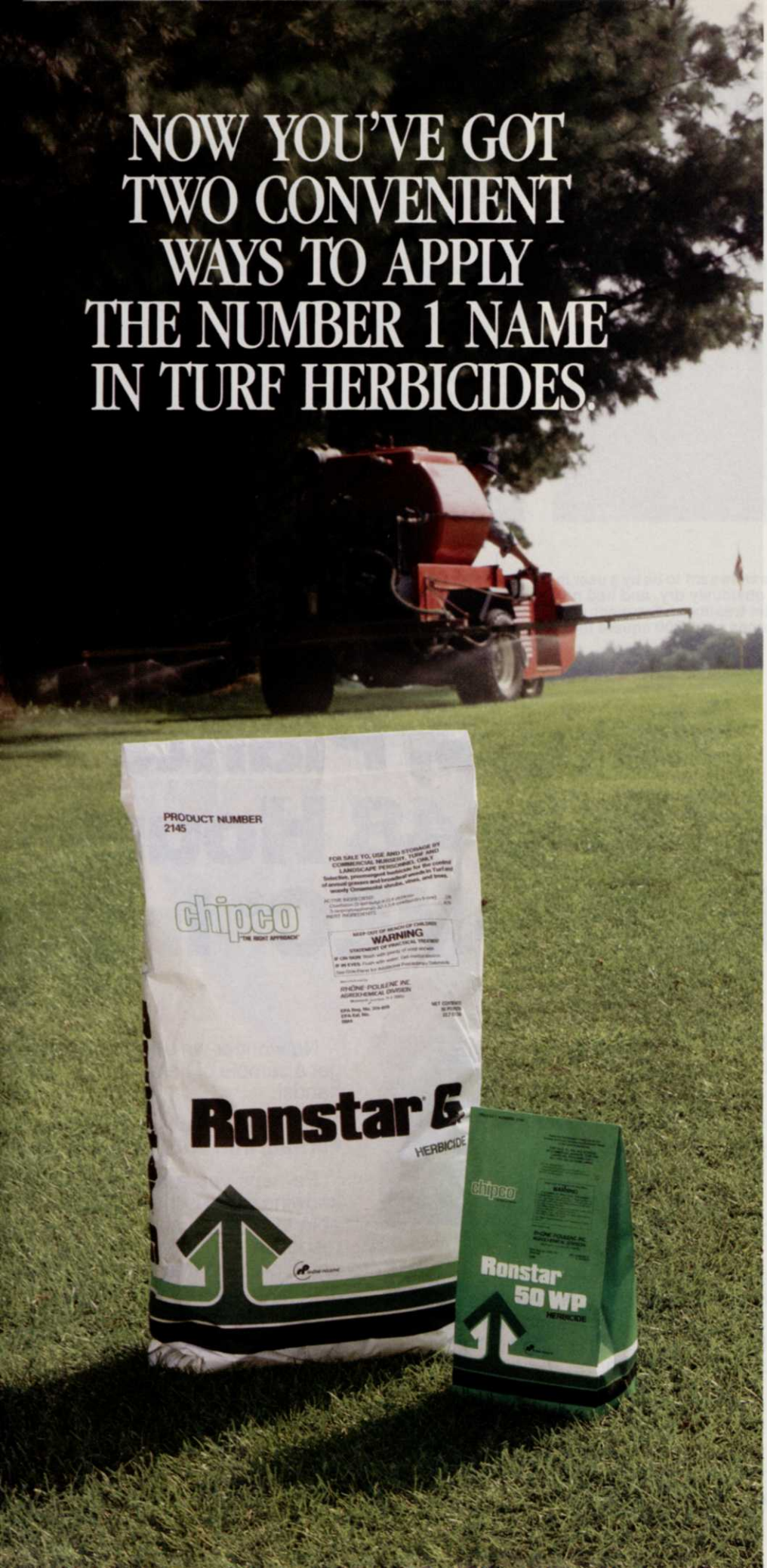
NOW YOU'VE GOT TWO CONVENIENT WAYS TO APPLY THE NUMBER 1 NAME IN TURF HERBICIDES.

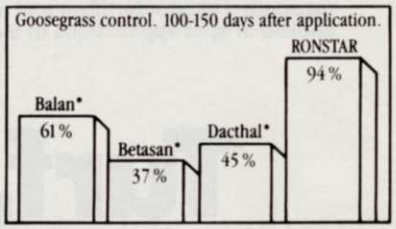


With Chipco® Ronstar® G and new Chipco Ronstar WP, problem weeds never see the light of day.

Golf course superintendents have made Chipco® Ronstar® herbicide the product of choice for pre-emergence weed control. And rightly so.

Just one application of Chipco Ronstar provides season-long control of 25 tough broadleaf and grassy weeds. Without the root pruning or leaching you get with other turf herbicides.

Plus, Chipco Ronstar still ranks as the Number 1 way to control stubborn crabgrass and goosegrass. Test results prove it.



Summary of 9 years of testing conducted by University Experiment Station and Rhone-Poulenc personnel.

And now, Chipco offers you the choice of easy-to-spread Chipco Ronstar G granules or easy-to-spray Chipco Ronstar WP wettable powder.

So start the season with Chipco Ronstar G or new Chipco Ronstar WP—the best way to keep weeds out of sight and out of mind.

Rhone-Poulenc Inc., CHIPCO Department, P.O. Box 125, Monmouth Junction, NJ 08852.

RHÔNE·POULENC

CHIPCO® RONSTAR®

HERBICIDE

Please read label carefully and use only as directed. Apply Ronstar only on turfgrass varieties included on the label.

CHIPCO® and RONSTAR® are registered trademarks of Rhone-Poulenc Inc.
*Balan is a registered trademark of Elanco.
*Betasan is a registered trademark of Stauffer Chemical Co.
*Dacthal is a registered trademark of SDS Biotech.

Circle No. 165 on Reader Inquiry Card

Before

These "Before" and "After" pictures were sent to us by a user in Texas. The turf was very chlorotic, obviously dry, and had not responded to prior fertilizer and water treatment. Ferromec was applied in split applications of 5 ounces per 1,000 square feet.

After

The initial response in 48 hours was very dramatic and, as the "After" photo demonstrates, chlorosis was eventually eliminated. Don't you have a spot where you would like to test a sample of Ferromec?

Turf, Shrubs, Plants Green Up in 48 Hours With FeRROMEC® Iron

Let us send you a sample of Ferromec so you can see for yourself how fast, easy, and economical it is to change the color of your world (and perhaps your wallet) from a weak chlorotic yellow to a strong, vibrant green.

Everett Mealman, *President*
PBI/GORDON Corporation

Thousands of turf and landscape professionals, as well as countless nurserymen, used Ferromec for the first time in 1986, and to summarize their response in one sentence...

"...Thanks! I needed that!"

Ferromec causes green up virtually over night in some instances. It speeds up the activity of herbicides. It reduces the tendency to over-fertilize in an effort to produce fast color. It provides a quick therapeutic shot of iron ...and it does all this so easily and economically that the practice of using expensive, slow-working chelated iron will never be the same again. Nor will the practice of over-fertilization.

No wonder we are so eager to get a sample of Ferromec in your hands!

The Facts About Ferrous Iron and Ferromec

Perhaps you are interested in knowing why it is that Ferromec is able to produce such a superior response. It's because of a patented process that enables us to actually bond a ferrous iron molecule to a molecule of urea, so that the iron is stabilized in the ferrous state.

As you know, only iron that is in the ferrous state can be utilized by a plant. But *ironically,* untreated ferrous sulphate turns to the non-usable ferric state almost immediately when it is applied.

Before

After

Trees, shrubs, and herbaceous plantings will respond to Ferromec as dramatically as turf, when they are deficient in iron. These before-and-after pictures show how Liriope greened up when Ferromec was applied in August of 1986.

These side-by-side containers of Manhattan Euonymus, pictured at a nursery, show what Ferromec can do for the nurseryman. The plant on the right was as chloratic as the one on the left before it was sprayed with Ferromec.

Thus it is that scientists devised chelating to fix the iron molecule in the ferrous state. If chelating is properly done it is effective, but it is very expensive and is so slow to release that it takes a long time to produce a significant color change.

Ferromec, on the other hand, works right now! The PBI/Gordon patented process of bonding ferrous sulphate to the urea molecule not only keeps the iron stable, but also speeds up the process of plant intake.

Because plants have such a voracious appetite for nitrogen, they ingest Ferromec right now via foliar intake to get the urea, and presto-chango...they ingest the iron right along with the urea, and it's green-up time in your world.

Ferromec® is a registered trademark of PBI/GORDON Corporation.
©PBI/Gordon Corporation 1987
Samples available only while supply lasts.

New Formulas for Multiple Tank Mixing and Soil Deficiencies

Amid last season's applause for Ferromec were several friendly tips for making it even better.

First of all, some lawn care companies wanted enhanced iron mixing compatibility for multiple tank mix situations containing an amine herbicide. To fill this need we have developed Ferromec AC.

Others wanted an amine compatible Ferromec containing manganese, and for them we developed Ferromec MAC as well as Ferromec M. Still others wanted a Ferromec to use in situations where there are multiple micronutrient deficiencies, and for them we have developed Ferromec MZ.

If You Have Questions About Iron, Talk to Ironman Himself.

Iron is definitely established as an essential micronutrient required by all plants. Yet, the amount required can vary dramatically depending on the pH of the soil, the composition of the fertilizer that is being used and the plant that is being fed.

To help you better understand how to use iron in your turf program, we invite you to visit with Neal Howell, our Plant Nutrition Product Manager. He is a leading authority on iron and is as near as your telephone when you have questions.

You'll like Neal. He lives, eats, and sleeps iron. Talk to him for a few minutes and you'll know why everybody calls him *Ironman.*

For your FREE SAMPLE*, or the answer to questions about Ferromec, call:

Toll-free
1-800-821-7925
In Missouri 1-800-892-7281

pbi/gordon corporation
1217 WEST 12th STREET
P. O. BOX 4090
KANSAS CITY, MISSOURI 64101

FERROMEC®

LIQUID IRON 680-1186

Circle No. 158 on Reader Inquiry Card

Seed Markets *from page 32*

bluegrass, produced by Jacklin Seed.

Other new varieties and releases include Allaire turf-type perennial ryegrass, Azetec turf-type tall fescue and Lexington Kentucky bluegrass. More varieties, mixes and brands are planned for future release.

The new company is run by seed industry veteran Irv Jacob, who started in the industry in 1960 at age 14. Jacob is noted for negotiating contracts with railroads for shipment of seed in boxcars, which helped reduce shipping costs and increased annual ryegrass usage in 1984 and 1985.

CONFERENCES

Good forecast coming from International Fair

Word from the 14th International Garden Trade Fair, September 28-30 in Cologne, West Germany, is that improved lawn maintenance is becoming big business on an international scope.

Increased demand was seen in both the domestic and export business by 26,000 visitors from 67 countries.

Exhibitors displayed products ranging from greenery to garden furniture. Firms displaying lawn care equipment reported better sales than last year, aided by new product introductions and an increased foreign attendance, which often rose above the 40 percent mark in this exhibit section.

New lawn mower models featured reduced noise emission, low oil-temperature operation, and engines running on no-lead gasoline fitted with catalytic convertors.

The 1987 show will be held September 6-8, running concurrently with the International Trade Fair of Sporting Goods, Camping Equipment and Garden Furniture.

4-Gallon Timesaver

When you buy a commercial mower from Kees, you get a big, 4-gallon fuel tank, because at Kees, we know what you want from a mower. You want it to get you through tough mowing jobs quickly and efficiently. But stopping to gas up slows you down.
So does mower downtime. That's why Kees mowers are built with superior materials and workmanship that gives you years of dependable, trouble-free service.
All Kees heavy-duty commercial mowers feature sleek design, Ultra High-Lift blade and fully baffled underdeck for close-quarter mowing and efficient grass clipping discharge.

Kees mowers are built with the operator in mind, with easy-operating fingertip controls, quick cutting height adjustment. Options include easy-riding sulkies, large capacity grass catchers and electric-start engines (48" and 60" models).

There's a Kees Mower for every job. Choose the one that's right for you — 32", 36", 48" or the big new 60" model. But choose Kees, because we know what you want in a commercial mower.

Built by Professionals ...for Professionals.

KEES™ F. D. KEES MANUFACTURING CO.
Box 1179
Beatrice, Nebraska 68310

Circle No. 134 on Reader Inquiry Card

RESEARCH

Cloning takes step toward turfgrass use

A researcher with the Institute of Food and Agricultural Sciences (IFAS) has developed a seed clone dehydration technique using the forage orchardgrass and grape which brings the possibility of improving "nature's time capsule" a step closer.

"We've been able to create plant clones for some time, but we hadn't been able to figure out a way to make them stop growing until we were ready to plant them," says developmental biologist Dennis Gray.

Gray, who does research on somatic embryos, or plant clones, out of IFAS's Leesburg, Fla., Agricultural Research and Education Center, says the findings carry far-reaching implications.

He discovered that by drying the tiny plant clones, a portable synthetic seed system is created which growers could apply for practical planting.

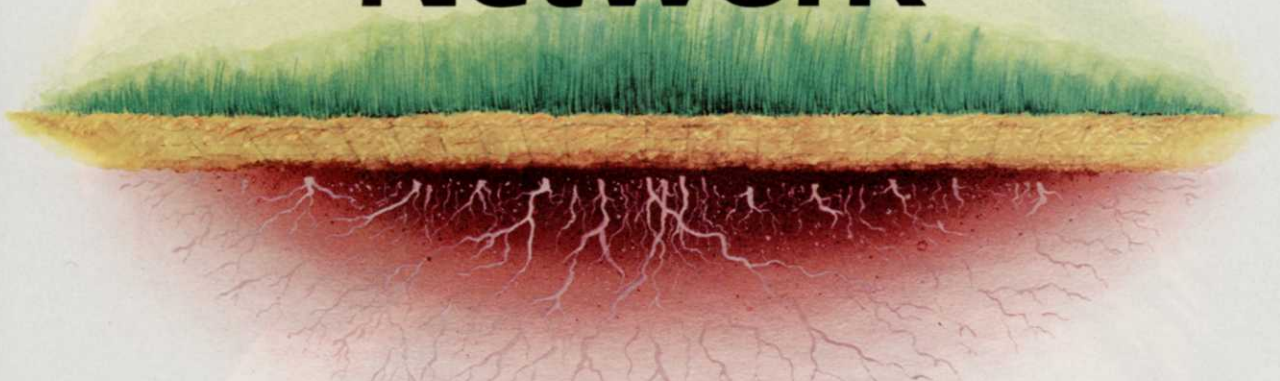
The dehydration research is the first of its kind done successfully. Despite low germination rates, Gray hails the research as a "breakthrough in synthetic seed research.

Though his research will be directed mainly toward agronomic applications, Gray says the research will eventually grow into the turfgrass and landscape markets in some way.

By means of cloning, researchers will be able to develop a seed that is the elite of a species. Logical applications for the technology would be in turfseed development.

"Synthetic seeds bypass sexual reproduction," he explains. "We'll be able to choose the best plants to clone, and we'll be able to commercially propagate hybrids and genetically engineer plants."

The Any-Job, Anywhere Erosion Control Network



North American Green has a nationwide network of specialized distributors who will provide comprehensive, practical experience to determine your specific erosion control needs. These distributors are backed by our Technical Sales and Research & Development people, the most experienced team in the business.

Our blankets stabilize soil to help nature prevent erosion. They provide an environment in which a growing ground cover — with its network of roots — can flourish. The resulting growth is nature's own form of permanent erosion control.

Depending on the degree of slope and anticipated water flow, one of our many types of erosion control blankets can be applied to bring even severe erosion problems under control, regardless of where or what type of climate the application may be.

Our products define the state of the art: the competition judges itself by how close they can come to the standards we set.

North American Green's blankets are easily installed, fastened in place with six-inch staples dispensed with our time-saving SureLock staple gun. No skilled labor is required for installation.

With the help of these products and this team, you can develop your own total erosion control program.

Write or call today if you want the definitive answer to your soil erosion problems. We'll be happy to have you in our network of customers.

NORTH AMERICAN GREEN

P.O. Box 66, Inglefield, IN 47618 • 1-800-772-2040 in Indiana (812) 867-6632

Circle No. 153 on Reader Inquiry Card

ARSENAL®. BECAUSE NATURE ISN'T AS TOUGH AS SHE LOOKS.

Killing weeds is easy. Unfortunately, so is harming inhabitants of the environment—no matter how unsusceptible they seem. That's why Cyanamid developed ARSENAL® herbicide. Its advanced chemistry does the job on weeds. Without getting tough with nature.

WHY ARSENAL IS EASY ON THE ENVIRONMENT.

Because of its unique mode of action, ARSENAL, when used as directed, has no harmful effects on mammals, fish, bees, birds or earthworms. Because ARSENAL is non-volatile and doesn't move laterally in the soil, off-target vegetation is unaffected. ARSENAL is nonflammable. Its unique chemical activity causes a slow "brown-out" in foliage, so it poses little fire hazard. Unlike tank mixes, ARSENAL introduces only one biodegradable product into the environment. And it's applied only once during a season, resulting in a lower chemical burden and a reduction in "touch-up" treatments.

CONTROLS MORE UNDESIRABLE VEGETATION.

ARSENAL has demonstrated control of a broad spectrum of weeds, vines and brush species. Tests in southern states showed that ARSENAL alone (at a rate of two quarts per acre) out-performed several tank mixes for annual and perennial weed control. Even more impressive, ARSENAL was most effective on difficult species like Johnsongrass, trumpetcreeper, kudzu and red maple.

ONE APPLICATION GIVES SEASON-LONG CONTROL.

ARSENAL gives you full-season control for up to eight months in temperate climates. It fits your spray schedule, because it can be applied at any time during the growing season. ARSENAL controls not only existing vegetation, but also new weeds that germinate after application. So you get residual control for the rest of the season. On hard-to-kill vegetation, ARSENAL keeps working on the roots until complete control is achieved. In spray solution, ARSENAL is stable for several days. That means no waste due to decomposition, and no chance of underdosing target vegetation.

Always read and follow label directions carefully.

ARSENAL offers broad-spectrum control, including these tough species:

Johnsongrass	Dallas grass
Trumpetcreeper	Bindweed
Poison ivy	Canada thistle
Greenbriar	Foxtails
Redvine	Red maple
Kochia	Kudzu
Multiflora rose	Sumac

DUAL ACTION CONTROLS IN A WHOLE NEW WAY.

Unlike many other herbicides, ARSENAL is absorbed through both roots and foliage to stop new plant cell growth. Vegetation absorbs ARSENAL in less than two hours, so rain won't wash off your investment. Within four hours, plant growth ceases. In perennials, ARSENAL translocates thoroughly in the roots to prevent regrowth. This unique chemistry makes the visible results of control more gradual. In some vegetation, loss of color and other outward signs may not be apparent for weeks after application. After a year or more, returning vegetation is mainly desirable annual grasses and legumes.

ARSENAL IS RIGHT FOR YOUR RIGHTS-OF-WAY.

On railroad, highway or industrial rights-of-way, around power substations, signal boxes, bridge abutments, lumber or freight yards—wherever you need annual total vegetation control, ARSENAL is the smart new choice for the job.

TOUGH ON WEEDS. EASY ON THE ENVIRONMENT.

ARSENAL herbicide

CYANAMID
Agricultural Division
Wayne, NJ 07470

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Circle No. 102 on Reader Inquiry Card

IN THE GREEN

WEEDS, TREES & TURF's search for the top money-making landscaping companies in the nation turns up some interesting numbers

by Jeff Sobul, assistant editor

By a landslide, the largest landscape contractor in the nation is Environmental Industries, Inc., of Calabasas, Calif.

Environmental Industries is involved in every facet of landscape contracting, but mostly in larger and more complex commercial, industrial and public jobs.

According to Burton Sperber of Environmental, the company pulls in gross revenues of around $2 million each *week*. That's as much as some of the companies in WEEDS, TREES & TURF's 1986 Top 50 make in a year.

Sperber says the 38-year-old company achieved its present size by doing a quality job, and doing it quickly.

One of Environmental's closest competitors for top money-making honors, The Brickman Group, declined to participate in this year's survey.

The next closest contractor is DeLaurentis Landscaping, Inc., of Mamaroneck, N.Y., which expected gross revenues totaling $13 million. Rounding out the $10 million-plus club are (sales in millions in parentheses):Vidosh Brothers, Sterling Hts., Mich. ($12.5); Davis Landscape Contractors, Inc., Harrisburg, Pa. ($10); The Bruce Company of Wisconsin, Inc., Middleton, Wis. ($10); and Lancaster Landscapes, Arlington, Va. ($10).

Interestingly, of those, only Environmental Industries operates in a warm weather area. This trend holds true for the remainder of the Top 50 as well. Nearly twice as many this year come from cooler weather areas.

It should be noted, however, that four of last year's top 10 companies did not participate in the survey this year. Of those, three were from warm weather areas.

On the average

WT&T's Top 50 grossed approximately $337,568,000 in 1986, an average of about $6.4 million per company (without Environmental Industries' $104 million, the average is closer to $4.6 million per company).

The companies averaged 2.2 branches, with 14 companies working out of a main office only. During peak season, Top 50 companies employed 8,363 people, or 161 per company, and 5,157 year round, an average of 99 per company.

Design and construction jobs totaled 13,340, an average of 272 per company. Top 50 companies also did 5,488 maintenance jobs in 1986, 110 per company. (*EDITOR'S NOTE: figures for design/construction jobs were not available for three companies; for maintenance contracts, two companies. Environmental Industries figures were not yet compiled for either category. Averages were calculated using only those companies that could provide those numbers*).

The following is a list of companies which allowed WT&T to use information provided in their surveys (branch offices are in addition to main offices):

The Bruce Co. of Wisconsin, Inc., Middleton, Wis., made the $10 million club on 400 design/construction jobs and 36 maintenance contracts. From one branch office, the company sends out 350 employees peak season and 200 year-round.

Cagwin & Dorward, Novato, Calif., placed 8th this year on $9.3 miilion in gross revenues from 176 design/construction jobs and 220 maintenance contracts. The company has five branches, and employs 180 peak season, and 150 year-round.

Clark-Morrell, Inc., Lithonia, Ga., turned 125 design/construction jobs and 60 maintenance contracts into revenues totaling $5.2 million. Out of a main office, the company sends 115 employees peak, and 90 year-round.

Contra Costa Landscaping, Inc., Martinez, Calif., grossed $2.8 million in 1986 from 15 design/construction jobs. Figures for maintenance contracts were unavailable. With two branches, the company employs 55 peak and 40 year-round.

Clarence Davids & Sons, Inc., Blue Island, Ill., did 750 design/construction jobs and 125 maintenance contracts en route to $3.5 million in revenues. The company employs 120 peak and 30 year-round while operating one branch office.

DeLaurentis Construction Co., Mamaroneck, N.Y., saw revenues more than double from last year, placing it second this year with $13 million on the strength of just 40 design/construction jobs. The company has no maintenance contracts. With one branch office, employees number 120 peak and 40 year-round.

East Side Nursing, Inc., Groveport, Ohio, joins the Top 50 with revenues of $4 million from 3,000 design/construction jobs and 100 maintenance contracts. Operating out of one main office, the company employs 150 peak and 25 year-round.

Environmental Industries, Inc., Calabasas, Calif., is this year's top entry, grossing $104 million in 1986. Its 2,000 employees work out of 20 offices.

Greathouse Landscape Co., Inc., Nashville, Tenn., remained in the Top 50 with $3 million in revenues from 285 design/construction jobs and 82 maintenance contracts. Its 65 employees peak and 51 year-round work out of one main office.

Greenleaves, Chamblee, Ga., grossed $4.8 million in 1986 from 34 design/construction jobs and 86 maintenance contracts. Year-round, Greenleaves employs 105, and 150-170 during peak season. The company operates three branch offices.

Greeno, Inc., Concord, Mass., grossed $3.4 million on 45 design/construction jobs. Its 15 year-round and 75 peak season employees work from one branch office.

Greentree, Inc., Stone Mountain, Ga., turned 400 maintenance contracts into $4.7 million gross. From three branch offices, the company sends out 140 employees peak, 90 year-round.

Ground Control Landscaping, Inc. Orlando, Fla., grossed $4.3 million from 15 design-construction jobs and 75 maintanence contracts. From one main office they send 90 year-round and 100 peak season employees.

The Ground Crew, Inc., Arlington, Tex., grossed $3 million from 48 design/coonstruction jobs and 350 maintenance contracts. Its 120 peak and 28 year-round employees work out of three branch offices.

Heyser Landscaping, Inc., had $5.9 million revenues from 107 design/construction jobs and 100 maintenance contracts. During peak season, the company adds 100 employees to its 65 year-round staffers, while operating one branch office.

Hillenmeyer's, Lexington, Ky., operates two branches while employing

Scotts ProTurf

OK, Doug. What is it about Scotts new ProTurf 22-0-22 NK Fairway Fertilizer that makes it a high quality product? "We use only top quality ingredients. All the potassium is in the form of potassium sulfate. The nitrogen is balanced between quick- and slow- release forms. And each high-density particle is homogeneous... providing a consistent feeding."

What does that mean on a fairway? "Several things—quick greenup, a greening effect that lasts up to two months, even distribution of nutrients. Also, less chance of burning turf, the addition of sulfur to the soil, and no chloride salts."

And you say it's designed for fairways? "Yes. It's composed of large particles that throw a wide, even swath from a rotary spreader."

What benefits do I get from a high potassium feeding? "It's been shown that potassium will enhance turfgrass performance — better drought hardiness, improved disease resistance, more tolerance to wear, things like that. And studies on bermudagrass attribute reduced winterkill to high potassium."

Sounds like it would be hard to go wrong with ProTurf 22-0-22 NK Fairway Fertilizer. "That's right. It can be applied any time, and it's very versatile, too. You can use double rates spring and fall in the north and all summer in the south. Half rates are great for cool season grasses during the hot summer months."

Can you sum all that up, Doug? "ProTurf 22-0-22 NK Fairway Fertilizer is a great program complement to our regular Fairway Fertilizer at 32-3-10 and our High K Fairway Fertilizer at 15-0-30."

For more information on Scotts new ProTurf 22-0-22 NK Fairway Fertilizer, call your ProTurf Tech Rep. Or call Scotts direct at 800-543-0006. In Ohio, call collect (513) 644-2900.

Circle No. 171 on Reader Inquiry Card

"Superintendents have been talking about a high quality 1-0-1 product designed for fairways. We've been listening."

Doug Horn, Scotts Research project leader (Fertilizer R&D), talks about new **ProTurf 22-0-22 NK Fairway Fertilizer.**

150 peak and 100 year-round. Its $3.5 million in revenues came from 400 design/construction jobs and 40 maintenance contracts.

Ireland-Gannon Associates, Inc., East Norwich, N.Y., grossed $3.5 million from 120 design/constrution jobs. Its 25-employee staff grows to 50-60 during peak season. The company has one branch office.

JKB Landscape, Inc., Aurora, Colo., turned 35 maintenance contracts and 20 design/construction jobs into revenues of $2.8 million in 1986. Its 30 year-round and 70 peak season employees work from one main office.

Johnson Hydro Seeding Corp., Rockville, Md., grossed nearly $5.3 million from 200 design/construction jobs. One hundred and twenty-four peak season and 31 year-round employees work from four branch offices.

Allen Keesen Landscape, Inc., Denver, Colo., raked in $3 million from 185 maintenance contracts and 40 design/construction jobs. With one branch office, the company maintains a year-round staff numbering 35-40, which increases to 100 peak season.

LMS Landscape, Inc., Dallas, Tex., grossed $2.2 million on 150 maintenance contracts and 100 design/construction contracts. From one main office, the company sends out 40-50 staffers year-round, 90-100 peak season.

Lancaster Landscapes, Inc., Arlington, Va., joined the $10 million-plus club with 275 maintenance contracts and five design/construction jobs. Its 400 peak season and 250 year-round employees work out of nine branch offices.

Larchwood Construction Corp., Holtsville, N.Y., grossed $4 million from 30 design/construction jobs and 21 maintenance contracts. With one branch office, it employs 15-17 year-round and 70 peak season.

Las Colinas Landscape Services, Inc., Irving, Tx, finishes out the top 10 with $8.4 million in revenues from 200 maintenance contracts and 50 design/construction jobs. The company's 180 year-round and 250 peak season employees work out of one main office.

Lied's Nursery Co., Inc., Sussex, Wis., grossed $4.8 million through the work of a 35-person year-round staff, and 100 peak season. The company operates two branch offices. Accurate figures were not available for maintenance and design/construction jobs.

McDugald-Steele, Houston, Tex., with $2.9 million in revenues did 120 design/construction jobs in 1986, along with having 48 maintenance contracts. The company's 30 year-round and 40 peak season employees work out of one branch office.

Milford Landscape & Maintenance, Milford, Conn., grossed $3.5 million on 34 design/construction jobs and 45 maintenance contracts. Forty-five year round and 100 peak season employees work out of one main office.

W.E. Mundy Landscape Contractors, Aurora, Ill., grossed $2.8 million on a 50-50 split of 100 maintenance and design/construction jobs. With one branch office, the company carries 80 employees peak season, and pares down to 15 year-round.

North Haven Gardens, Dallas, Tex., completed more than 3,000 design/construction jobs, along with having 260 maintenance contracts, earning the company $3.8 million in gross revenues for 1986. The company has two branches, 110 employees peak season and 85 year-round.

Oak Brook Landscape Co., Oak Brook, Ill., brought in $3.5 million on 85 maintenance contracts and 35 design/construction jobs. Twenty-one year round and 110 peak season employees work out of four branches.

Oyler Bros. Company, Orlando, Fla., placed ninth with revenues of $8.5 million from 235 maintenance contracts and 125 design/construction contracts. The company employs 225 year round and 300 peak season while operating four branch offices.

Reinhold Landscape, Inc., Detroit, Mich., enters the Top 50 with revenues of $4 million from 75 maintenance contracts and 15 design/construction jobs. From one branch office, the company employs 40 year-round and 100 peak season staffers.

SaBell's, Inc., Englewood, Colo., placed 10th last year, but this year moved up to 7th with $9.5 million in revenues, mostly from 350 design/construction jobs. The company's 60 year-round and 300 peak season employees also worked on 40 maintenance contracts while operating two branch offices.

Alfred L. Simpson & Co., Inc., Atlanta, Ga., operated one branch office while employing a staff of 150 peak season, 100 year round. Its $5 million in revenues came from 60 maintenance contracts and 50 design/construction jobs.

R.B. Stout, Inc., Akron, Ohio, brought in revenues of $3.9 million from 350 maintenance contracts and 100-150 design/construction contracts. The company carries just five employees year-round, but increases the staff to 115-135 peak season.

Vidosh Brothers, Sterling Hts., Mich., ranked a close third this year on $12.5 million in revenues. The company did 125 design/construction jobs and had 50 maintenance contracts in 1986. Its 80 year-round and 185 peak season employees work out of two branch offices.

White Oak Landscape Co., Inc., Marietta, Ga., finished 250 design construction jobs and had 26 maintenance contracts, giving it $2.5 million in gross revenues. A main office supports 50 year-round and 78 peak season employees.

EDITOR'S NOTE: In order for this survey to be as comprehensive as possible, the editors need your assistance. Unfortunately, it's tough to reach all 12,000 of you landscape contractors with the survey. Obviously, it is much easier for you to reach us. So, if your gross revenues exceed $2 million for 1987 and you would like to be a part of next year's survey, please send us a business card with the company name, address and a contact person to whom we can send the survey. If you were left off of this year's survey, we're sorry. We are the first magazine or organization to do this sort of project. Please bear with us as our "Top 50" survey goes through its growing pains.

WT&T TOP 50

for 1986 selling season

AAA Lawn Industries
Tucker, GA

The Bruce Company
Racine, WI

Cagwin & Dorward
Novato, CA

Chapel Valley Landscape
Woodbine, MD

Clark-Morrell
Lithonia, GA

Contra Costa Landscaping
Martinez, CA

Clarence Davids & Sons
Blue Island, IL

TOP 50 continued on page 44

THE FIRST...4-wheel drive
lightweight, 5 gang, tractor reel mower

Standard mower shown

Hydrostatic transmission, diesel, Kubota reliability

Fixed cutting unit, with anti-scalp rollers.

Floating cutting unit with front roller

Rear mower assembly detached

Finger-tip controls for easy fold-up and transportation

- Low total unit weight reduces compaction
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- Offers the traction needed to mow slopes and in difficult conditions
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- Small tractor maneuverability and economy
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Circle No. 107 on Reader Inquiry Card

LANDSCAPE PROFILE

Davis Landscaping Contractors
Harrisburg, PA

DeAngelis Landscape
Woodhaven, MI

DeLaurentis Construction Co.
Mamaroneck, NY

East Side Nursery
Groveport, OH

Environmental Industries
Calabasas, CA

Greathouse Landscaping Co.
Nashville, TN

Green Carpet Landscape
Worchester, MA

Greanleaves
Chamblee, GA

Greeno Inc.
Concord, MA

Greentree, Inc.
Stone Mountain, GA

Ground Control Landscape, Inc.
Orlando, FL

The Ground Crew
Arlington, TX

Edmund M. Hayden Landscape
Woodstock, IL

Heyser Landscaping
Norristown, PA

Hillenmeyer's
Lexington, KY

Industrial Landscape Services
San Jose, CA

Ireland-Gannon Associates
East Norwich, NY

JKB Landscape, Inc.
Aurora, CO

Johnson Hydro Seeding Corp.
Rockville, MD 20850

Allen Keesen Landscape
Denver, CO

L&L Maintenance
Santa Clara, CA

LMS Landscape Inc.
Dallas, TX

Lancaster Landscapes, Inc.
Arlington, VA

Larchwood Construction Corp.
Holtsville, NY

Las Colinas Landscape Services, Inc.
Irving, TX

Lied's Nursery Co.
Sussex, WI

McDugald-Steele Associates
Houston, TX

Milford Landscaping & Maintenance
Milford, CT

W.E. Mundy Landscape Contracting
Aurora, IL

North Haven Gardens
Dallas, TX

Oak Brook Landscaping
Oak Brook, IL

Oyler Bros. Co.
Orlando, FL

Plant Control Corp.
Irvine, CA

Reinhold Landscape, Inc.
Detroit, MI

Ruppert Landscaping
Ashton, MD

SaBell's Inc.
Lakewood, CO

Alfred L. Simpson & Co.
Atlanta, GA

SKB Lawn Inc.
Clarkston, GA

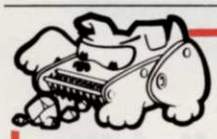
R.B. Stout
Akron, OH

Suburban Landscape Assoc.
Davenport, IA

Torre & Bruglio Landscape Contracting
Mount Clemens, MI

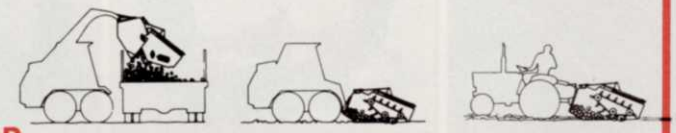
Vidosh Brothers
Sterling Hts., MI

White Oak Landscaping
Marietta, GA



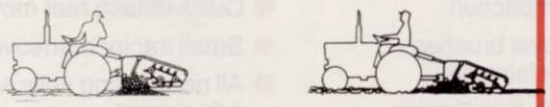
ROCKHOUND
TEACHES
THE ABC'S OF GROUND PREPARATION

A SERIES ROCKHOUND



Dumping — Skid Steer Mount (Hydraulic) — 3 Point Mount

B SERIES ROCKHOUND



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That's Team's most impressive strength. Its weeks of weed control.

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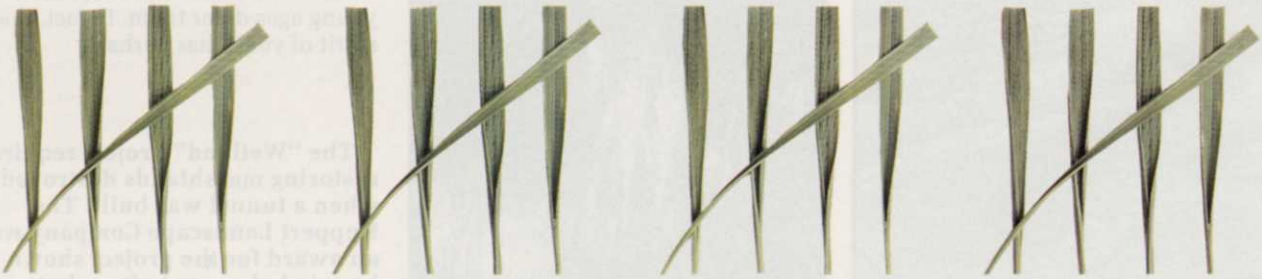
Its weeks.



Circle No. 123 on Reader Inquiry Card

ALL-PRO LANDSCAPERS

The Ruppert Landscape Co. maintains an impressive client list with a 'mission' to be the best.

by Heide Aungst, associate editor

The Ruppert brain trust: Chris Ruppert (left), Chris Davitt (center) and Craig Ruppert. The trio began their turf career mowing lawns in Chevy Chase, Md.

It's easy to drive right past Ruppert Landscape Co.

The quaint red-brick house, which sits off an Ashton, Md., road, doesn't look like an office. It's just another house in the neighborhood.

But the house's history gives it an appeal the surrounding homes don't share.

Baseball Hall-of-Famer Sam Rice of the Washington Senators once lived there. And, if there was such a thing as a landscape Hall of Fame, the Rupperts would probably be inducted.

The Ruppert brothers, Craig 31, and Chris 33, moved their small business to Rice Manor in 1980. At that time they bought just two acres of the land surrounding the home. Today, the company owns almost 10 acres.

Back then, the company made $440,000. This year the company will do about $4 million in business.

They've come a long way from the humble beginnings of mowing neighborhood lawns in Chevy Chase, Md., for a few extra bucks. Their list of clientele includes the Saudi Arabian embassy and Vice President George Bush's home in Washington, D.C.

They're award winners, as well. The Rupperts won the Landscape Contractors Association of America's Metropolitan Washington award in 1984 for the Blair Complex, an apartment building.

Billers from the start

Craig started the company in 1971 at 18. Chris joined him the next year. One thing that set the Ruppert brothers apart from other neighborhood kids is that they would bill their customers, like a professional business.

In 1972 they hired a friend's kid brother, age 12, to help with the lawn mowing. Chris Davitt, now 26, has become a key decision-maker in the business.

Craig holds the title of president; Chris Ruppert is director of landscape; and Davitt is director of landscape management.

The three have never let their young ages deter them. In fact, the spirit of youth has perhaps

The "Wetland" project required restoring marshlands destroyed when a tunnel was built. The Ruppert Landscape Company won an award for the project shown here in before and after photos.

contributed to their success.

Take Ruppert's 1985 "Wetlands" project. Other landscape companies in the intensely competitive D.C./Baltimore market turned up their noses at the idea of restoring the marshlands which had been destroyed when the Baltimore Tunnel was built.

The trick was to create a wildlife environment in the tidal waters of Baltimore Harbor.

But the Rupperts, with no knowledge of aquatic plants, said they'd try.

They bought a boat and 25 lifejackets. Wading through mud between high and low tides, the daring company planted 650,000 bare root tubers (plants such as cattails) over 40 acres.

"There's been the attitude here which has prevailed since the beginning that they've never said they can't do a job," says Pat Ruppert, special projects coordinator. That's an attitude Pat had to learn when she married Craig five years ago. "There sure are a lot of dreamers here," she says.

Those dreams should lead to the opening of an office at a second site soon and possibly expanding to a national company someday.

Already, with close to a hundred employees, they're outgrowing the Rice Manor office.

Handling that many employees is something the three admit they didn't do well at first. As long as crews were working hard, it didn't matter if they were happy.

Employee rewards

"We used to get in the truck and curse the boss, who happened to be the Rupperts," Davitt says laughingly.

"Our biggest challenge is people," says Craig. "And we can't grow without people. Keeping everyone happy and productive, that's something we do well."

"We do it well," Chris Ruppert chimes in, "but it's still our biggest challenge."

To meet that challenge, they now give three annual awards for employee achievement. They hold monthly staff meetings, regular training seminars, and a competitive field day including a family cook-out.

They've begun an employee profit-sharing program. On top of that, the Rupperts know every worker personally, and publish "The Ruppert Report," a newsletter printed three times yearly to keep employees informed on projects and company growth.

The Rupperts purchased current home Rice Manor along with two acres of land in 1980. Today the company owns 10 adjacent acres.

As with most companies, financial management is as important as personnel management. Although the company has printed financial statements since '72, they've learned a lot by trial and error.

"You name it, we've done it wrong," says Craig.

Their list of clientele includes the Saudi Arabian embassy and Vice President George Bush's home in Washington, D.C.

"There were several different times we didn't plan for the growth," Davitt explains.

"The key is not that you make mistakes, but that you learn from them," Chris Ruppert adds.

Running the company has been an education for the brothers.

Craig doesn't have a college degree. Chris has an associate's degree in business. Chris Davitt stopped short of receiving a bachelor's in business.

They learned about plant materials in the field and at seminars. Sometimes, the instructions on a fertilizer bag served as a teaching tool.

Trade associations and using the local extension agent helped the three make it through some projects. Hiring qualified workers has helped, too.

Many of the Rupperts' managers are educated in related areas, such as horticulture.

In fact, the Rupperts have established a relationship with the University of Mississippi where students work on a co-op basis and then have the opportunity for a full-time position after graduation. They also plan to recruit from other universities.

More installation

But some things won't change as the company grows, the Rupperts emphasize.

For one thing, they will continue to concentrate on landscape installation and management. Landscape design or growing their own plant materials might look promising to some companies, but the Rupperts are wary about spreading themselves too thin.

They will still take on jobs which other companies might refuse.

The company's philosophy, which they call "The Ruppert Mission," is framed in almost every office at Rice Manor. The goal: to be aggressive, efficient and profitable.

"I have to read it every other day," Craig says.

One thing he doesn't need to be reminded of is the company's multi-million dollar figures. With those in hand, the three partners can breathe easily at the end of each day.

Mission accomplished. **WT&T**

Ford shapes the American landscape

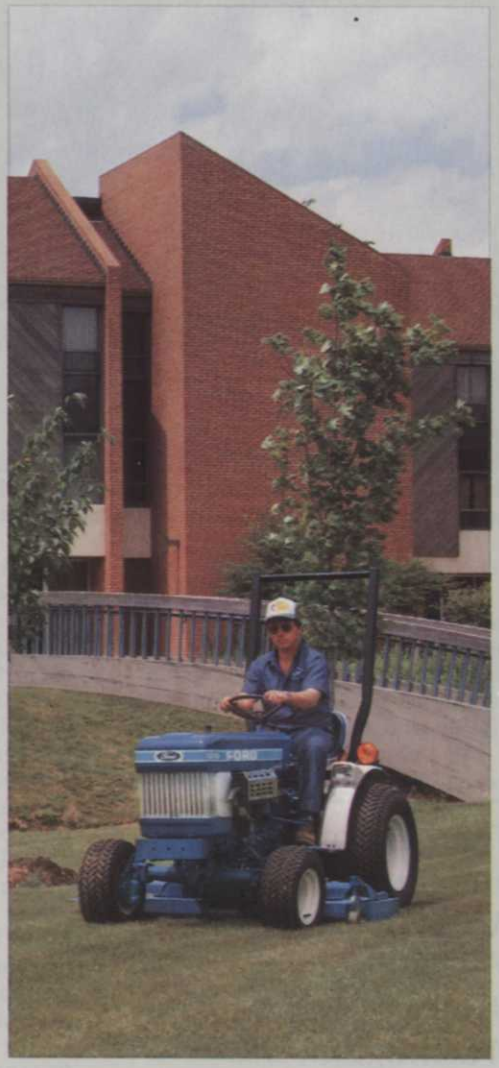
Industrial tractors

Big site preparation projects require a tractor with extra strength and performance... and that's exactly what a Ford industrial tractor or tractor-loader offers.

Four heavy-duty diesel models are available with 49 to 63 SAE net horsepower. Tractor-loaders offer up to 4,500 lbs of lift capacity, with single-lever loader control and return-to-dig.

Choose from three power-matched transmissions—4 speed torque converter, dual range 8-speed, or manual-reversing 6x4.

Ask your dealer about the Ford Extended Service Plan. ESP covers many specific repairs for 36 months or 2,500 operating hours, whichever comes first. At a modest cost, it's smart protection for your rig.



Compact tractors

Hardworking Ford 1000 Series diesel tractors are ideal for a wide range of mowing, loading and site preparation jobs.

Choose from six models, 13 to 32 engine horsepower. Standard equipment includes important features like 540 rpm PTO, Category I 3-point hitch, full-time live hydraulics and a 10 or 12-speed transmission.

Options include front-wheel drive. Hydrostatic or Synchronized Manual Shuttle transmission, depending on model. Creeper speeds. And turf tires. Over 50 matching attachments and implements are available, including 15 different mowers.

Tractor-loaders

You can equip virtually every Ford tractor with a matching Ford loader. These quality loaders combine strength with smooth control. Double-acting lift and dump cylinders are standard. Lift capacities range from 530 to 5,000 pounds. All loaders offer a choice of buckets.

Quik-Tach loader models for many tractors make for great flexibility. You can easily mount or remove the loader to suit the work at hand.

Ford also offers many other attachments for grounds maintenance work: rotary cutters, flail mowers, front and rear blades, landscape rakes, scoops and posthole diggers.

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Industrial backhoes

With a Ford industrial backhoe-loader, you'll be well equipped for trenching, drainpipe installation and other heavy-duty earthmoving jobs.

With Ford you can count on awesome power and precise control. The 14-foot backhoe gives you 9,735 pounds of digging force, and the 12-foot model 8,800 pounds.

Two or four-lever controls offer precise operation. Ten-foot stabilizer spread provides a wide stance. A selection of buckets lets you equip your backhoe for a variety of digging jobs.

New mid-range tractors

The new Ford II models are versatile tractors that make short work of big-area mowing, loading, site preparation and other tough jobs. They're easy to operate and offer excellent all-around performance.

Choose from five diesel models from 34 to 60 maximum net engine horsepower. Standard equipment includes 3-point hitch, independent PTO, and power-assist steering. A new optional cab on selected models makes them an excellent choice for snow removal work.

Other options include front-wheel drive, synchromesh transmission, and turf tires.

Ford also offers 40 and 60 maximum SAE net horsepower low-center-of-gravity Ford II tractors.

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Skid-steer loaders

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NEW HOLLAND

LANDSCAPING FOR THE RICH AND FAMOUS

Tree Land Nurseries in West Palm Beach makes money and wins awards with the best of them. The secret? The trust its clients have for Tree Land.

The green in West Palm Beach, Fla., is not just in the turf and trees.

In an area where money is more abundant than palm trees, Tree Land Nurseries has tapped into the profitable market.

If you drive through the wealthy Palm Beach area, chances are that several of the multi-million dollar mansions you pass are landscaped by Tree Land.

Drive up the southeast coast of Florida, stop to buy a Whopper, and that Burger King probably was landscaped by Tree Land.

And when the Olympic swimming trials take place at Mission Bay in Boca Raton, Tree Land vice-president Raworth Wall will be able to watch in peace: another million-dollar-plus "mission accomplished."

Tree Land, with accounts from Key West to Orlando, is one of the largest landscape firms in the state. And Wall "couldn't venture a guess" at how many awards the company has won in its 13 years.

"We believe in building a ground base of trust and good relationship with a large company," Wall says. "Most importantly, we make sure we meet deadlines for the C.O. (certificate of occupancy)."

A college-professor look

Wall, a gray-bearded Englishman, looks more like a pipe-smoking professor than a landscape contractor. Educated in horticulture and landscape architecture at the universities of Essex and Cambridge, Wall fell in love with the subtropical climate in West Palm Beach and settled there.

One thing he loves about Florida is the "instant" landscaping. It's not uncommon for Tree Land to move large trees in full flower at any time of the year. The biggest is a 45-ton ficus tree at Mission Bay, just one of some 4,000 trees moved during that project.

Condos dropping off

The southern landscape market differs from northern primarily in the type of buildings being designed.

Wall says the trend in the Florida building market is total care facilities and rental properties.

The condo market is dropping off. People seem more interested in single-family, self-contained homes, with landscape management provided through an association.

"I'm concerned about the overbuilding of office buildings," he says. "That market is really overbuilt. The price per square foot is going down. We can pretty much negotiate our own terms."

Another difference between the two markets is that Florida landscapers may lose control over what type of trees dot the landscape. A surge in Florida's population has forced the Native Plant Society and the Southern Florida Water Management District to issue a proclamation that all state projects must be landscaped with native trees, since they use less water.

The groups particularly push using the state tree, sabal palm, to maintain the tropical Florida look while conserving water.

"I think a good combination of native and exotic trees should be used...a good mix of pines, palms and flowering trees to add and enhance color," Wall says.

Cutthroat competition

Tree Land employs about 150 people. Wall says the pride and competition among foremen is so strong that he rarely sends two out on the same job.

When projects include Jack Nicklaus' home in Lost Tree, the Palm Beach Polo Club in Wellington (royal host to Prince Charles and Princess Diana when they visited), or a small streetside park on luxurious Worth Avenue, the

Tree Land won a design/build Florida state landscape award for the Radice Corporate Center.

cutthroat competition is understandable.

"It's fun doing those projects because they have the money to do it the right way," Wall says, grinning at the thought of a homeowner spending $100,000 on landscape installation. "It gives the foreman a great sense of accomplishment."

The company does no maintenance work. But Wall will prepare a fertilizer and spray program for customers who don't know the proper procedure.

"I get upset when an owner invests three-quarters of a million dollars on a project and I drive by six months later and it's brown," Wall sighs. "It's a real shame."

Future plans

Tree Land's nursery carries about $5 million in inventory. The company's future plans include further specializing in plant materials, with an emphasis on more salt-tolerant plants for oceanfront landscapes.

Down the road Tree Land also plans expanded mechanization. The company already boasts more than 100 pieces of equipment, including hydraulic cranes, front-end loaders and water trucks. The company has purchased its own service truck.

The company recently opened its second landscape contracting office in Orlando.

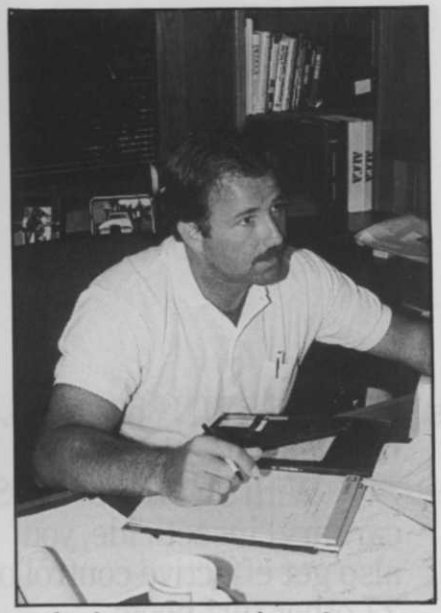
The design and contract divisions rarely work together on a job. When they do, the sister divisions often create masterpieces, like the Radice Corporate Center.

Of course, million dollar figures can be a real motivator to a company. But, when you can landscape for some of the world's richest people, it would just be boring to work any place else.

—*Heide Aungst*

Landscaping luxurious Palm Beach homes is all in a day's work.

BEST IN THE NORTHWEST?



Rich Akerman, president of Northwest Landscape Industries, used to weigh 267 pounds during his college football days. He's down to a svelte 205 now.

Northwest Landscape Industries is enjoying success in 'The Silicon Forest' by keeping many high-tech clients 'in the chips.'

When you look for quality in the landscape industry, look to the Pacific Northwest, home of Northwest Landscape Industries.

A trendsetter from its birth 15 years ago, Northwest remains one of the nation's finest large-scale operations, thanks to a skilled work force and management with vision.

General manager Jim Wathey and president Rich Akerman became partners 14 years ago and have watched the operations grow with vigor each year. Today, revenues total $6 million.

"Our overall goal for this company is to be in the $10 to $14 million range," says Akerman. "We don't want to get too big because it's fun now. We've gone through hard growth that has wiped some young kids out. Bigger is not always better."

Northwest has main offices in Tigard, Ore., a Portland suburb, and Seattle, Wash., and smaller offices in Portland and nearby Beaverton.

High-tech companies dominate the Portland area (Akerman calls it "The Silicon Forest").

"Here in the Northwest, we have something a lot of people don't realize—water," says Akerman, a native of California's arid San

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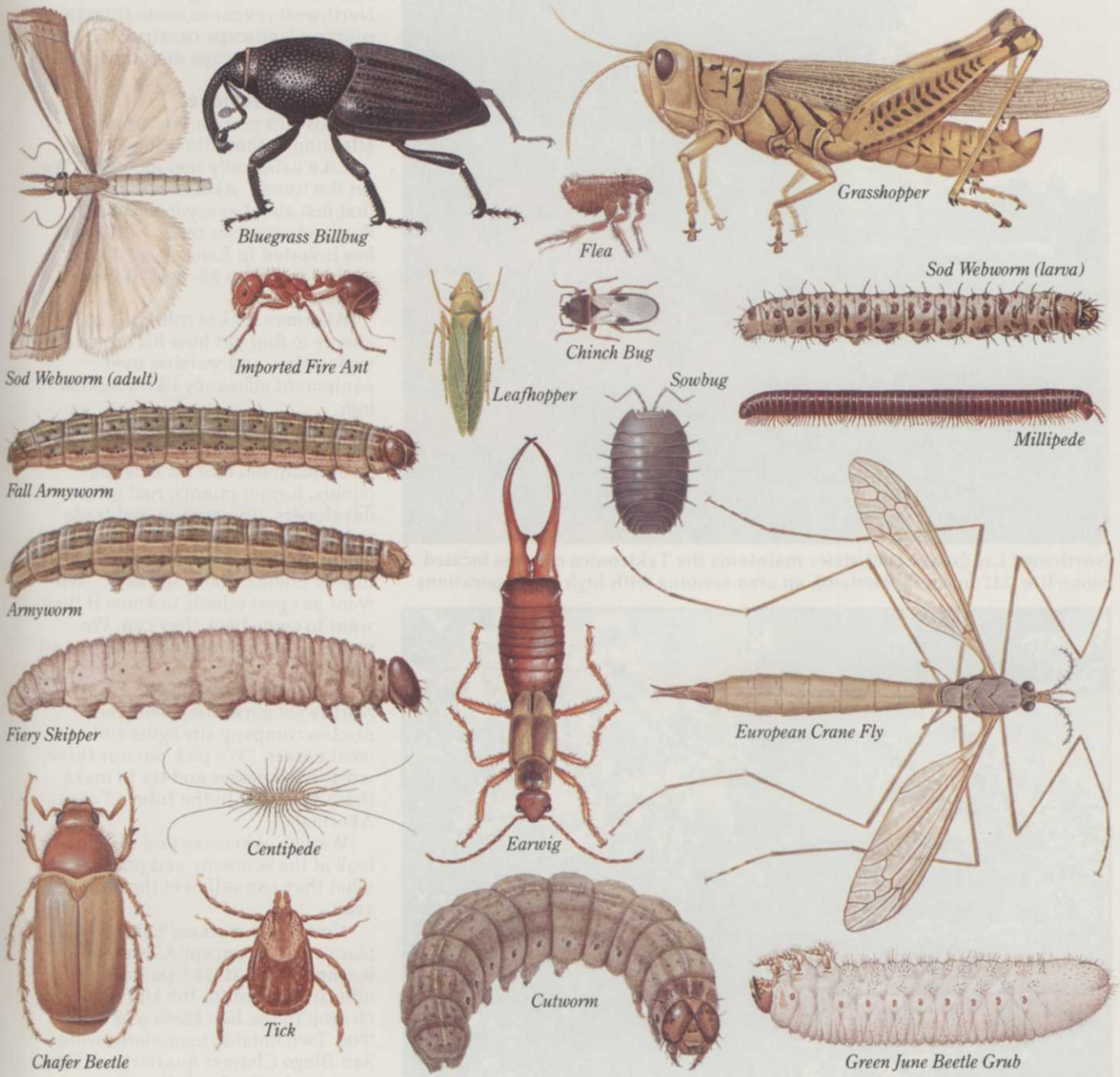

like chinch bugs, billbugs, armyworms, cutworms, and sod webworms.

And SEVIN® brand SL carries a Toxicity Category III Caution label. Which makes it ideal for use on golf courses, parks, lawns, or any turf area frequently used by people and animals.

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From the turf care group at Union Carbide.

Agricultural Products Co., Inc. As with any insecticide or herbicide, always read and follow label instructions. Member of Golf Course Superintendents Association of America.

Circle No. 179 on Reader Inquiry Card

Northwest Landscape Industries maintains the Tektronics campus located along Rte. 217 in south Portland, an area teeming with high-tech operations.

Another impressive Northwest job—the Oregon Graduate Center research facility in Beaverton, Ore.

Fernando Valley region.

Northwest revenues come from two sources: landscape construction and industrial landscape maintenance.

A unique business

Northwest's growth is a result of attention to the little things.

Like using only reel mowers. "We set the trend," Akerman says, noting that just about everyone else in Portland also uses reels. Northwest has invested in Ransomes 70-inch triplex and Toro 58- and 70-inch triplex mowers.

Akerman makes cold calls on clients to find out how his crews are performing, and watches over equipment efficiency like a mother hen.

Also, the company publishes a quarterly newsletter, "4 Seasons", as an educational tool for existing clients, former clients, real estate developers, universities and trade publications.

On sending the publication to former clients, Akerman says, "We want our past clients to know if they want to come back they can. We want our name in front of them at all times."

At the end of each year, Northwest personnel meet and discuss company strengths and weaknesses. "We pick out our three worst weaknesses and try to make them strengths in the future," says Akerman.

Wathey, Akerman and staff then look at the economy and project what they can sell over the next year.

Northwest workers believe in teamwork, a concept Akerman learned as a 5-11, 267-pound offensive guard for the University of Oregon in the late 1960s and early '70s. Two notable teammates were San Diego Charger quarterback Dan Fouts and NBC football commentator and former NFL star Ahmad Rashad.

Dedication

"Our company is dedicated to providing quality products and services to our clients in the landscape industry," says Akerman.

Northwest is everywhere. Nike,

Intel, Mentor Graphics, Tektronics—the company has many giant-sized clients. The buildings are sharp, the landscape superb.

"We only offer service and quality—you can't do anything else. People today sometimes don't get a lot of service but if you offer it, they'll spend the money," says Akerman, while preparing an urgent quote for a potential client.

Northwest prepares to better serve clients in the future by beefing up the company's design/build services.

"We believe the future is in design/build and we're heading that way," says Akerman.

One way he's doing that is by hiring landscape architects as part of the team instead of competing against them. "That way they can have their business. We're not in competition." That attitude has helped growth in the design/build end.—*by Ken Kuhajda*

SHOOTING THE MOON

From zero to $8.4 million in sales in just six years, Davis Landscape Contractors know no bounds.

Contrary to the controlled growth of Northwest, Davis Landscape Contractors of Gaithersburg, Md. has blown the top off its growth chart. Begun in 1981, Davis experienced total sales of $8.4 million this past season.

"We haven't set a limit on what 'the moon' is for Davis," notes company president and CEO Chris Daniels. "We've never been a company to dwell on anything. We just go after something else."

Daniels is a proponent of team management. And he has assembled a good team: chairman Art Davis, vice-president Scott Forrester, secretary-treasurer Scot Davis, contract administrator Dan Tamminga and vice-president David Lindorfer.

"Our people have to be the tops," Daniels says. "We can't settle for less. Those guys have pushed me to my limits. When my alarm goes off at 5:45 a.m., I know there's 30 or 40 managers' feet hitting the floor at the same time."

Top managers at Davis work 10 to 12 hours a day, five days a week. That kind of a schedule might burn out many executives. But not the people at Davis.

Tamminga, who is married and has one son, does like it, though, when things get a little slower. "You have a higher frustration rate with the long hours," he says. "And the family puts a lot of pressure on. But what keeps me going is that I know there's a breather at the end of the

Fairview Park, where Davis crews must cope with turf, tree, shrub and water management.

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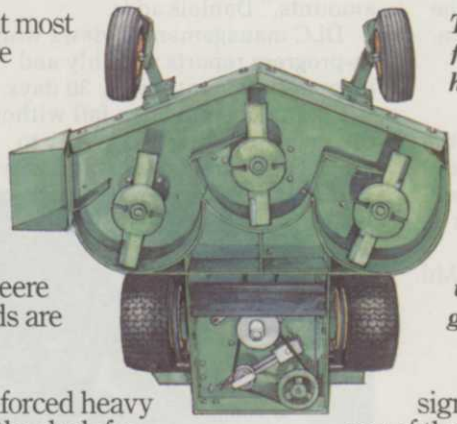

The center-spindle-forward 48-in., 17-horsepower model shown here features a baffled under-deck design that improves air-flow for less windrowing and good bagging.

They're also designed to give you one of the cleanest cuts in the business, too.

With a baffled under deck design that improves the airflow for less windrowing and good bagging. An overlapping blade design for cleaner cutting without stripping. Plus precise hand clutch steering for responsive turning in tight areas.

And to keep you cutting, crew after crew, John Deere's FLASH™ parts system can even get you temporarily out of stock items quickly. In most cases overnight.

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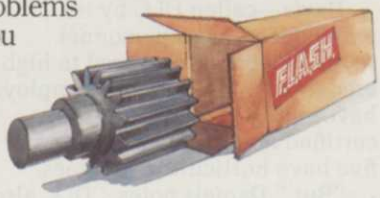

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year. I sort of re-evaluate in the slow season."

Lindorfer, a newlywed, says, "We all approach the burnout, usually in the fall. If this was a 12-month season, we wouldn't handle the pace. January and February are the two most important months, when everybody can get recharged."

$1 million, 3 trucks

The Davises and Daniels started the company in Harrisburg, Pa. in 1980 with a $1 million budget and three trucks. Gradually, the company's sphere of influence widened to Hilton Head, S.C., Gaithersburg, Md. and Raleigh, N.C.

The turning point was when Davis was awarded the $300,000 Shady Grove Metro project in Rockville, Md. "We overcame, perhaps, the strictest and most complex governmental specifications in order to complete the job on time and within budget," notes Lindoerfer. "The competition was expecting us to falter, but we didn't."

By 1984, sales exceeded $2.3 million at the Gaithersburg branch alone, and $3.4 million for the entire company.

A working philosophy

Bases of the company's working philosophy are quality, fair price and performance.

"We always keep our word," notes Scot Davis. "If I have to pull a crew out of Harrisburg to make a deadline in Washington, D.C., I'll do it. And I have."

Davis—called DLC by its employees—has a personnel recruiting program geared to high credentials. More than 45 employees have college degrees. Six are certified landscape architects and five have horticulture degrees.

"But," Daniels notes, "DLC also has a lot of fantastic employees who don't have college degrees. The executive, white-collar and blue-collar mix in this company is very balanced. More importantly, we promote from within, so most of our employees know what it's like to have been at the end of a shovel at one point in their lives.

"We sell opportunity."

Growth like DLC's means, obviously, some radical financing. Daniels says that the company's strong track record—from the very beginning—of predictability and dependability allowed DLC to secure short-term working capital when needed. "But equally important is the line-by-line analysis and breakdown which has consistently come out very close to projected amounts," Daniels adds.

DLC management reviews work-in-progress reports monthly and income statements every 30 days.

"Many businessmen fail without the understanding and ability to project and forecast why and when they need cash," says Daniels.

"Our system has explicitly shown our people where they are and where they are heading," notes Scot Davis. "Our people have the information in advance to evaluate a problem and the tools and company support to react quickly to resolve them."

There is no secret to the success at Davis Landscape Construction: it's as simple as "people plus performance equals profit."

—*Jerry Roche*

The Davis management team: (from left) vice-president Scott Forrester, contract administrator Dan Tamminga, president Chris Daniels and vice-president Dave Lindoerfer at U.S. Fidelity & Guaranty Insurance.

U.S. Fidelity & Guaranty Insurance, one of Davis's more valued accounts.

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THE GRADUATE

Eldon Dyk left school to join Allen Keesen Landscaping. It was like 'graduating,' and Dyk is not sorry he made the switch.

Eldon Dyk (left) and Allen Keesen 'found' each other in 1981.

Eldon Dyk felt trapped. After 15 years as a teacher, coach and assistant principal on the high school level, he felt he wasn't getting anywhere. It was, he admits, his "mid-life crisis."

At the same time, Allen Keesen of Allen Keesen Landscaping, Denver, Col., was toying with adding a maintenance division to his already-successful design/build division.

Five years ago, Dyk and Keesen found each other. The result has been a growing company.

Dyk, who grew up on a Montana farm, visited Joe Marsh and Rod Bailey, both successful landscape contractors, before he even sat behind his new desk. The market was not easy to learn, but he had a head start because he knew how to deal with people.

"I'm a people person in terms of dealing with labor and clients," Dyk notes now. "That's something I did as a teacher, coach and assistant principal."

Most of the clients own office buildings, though the list includes some homeowner associations and three residences.

"Homeowner associations are the hardest to deal with," Dyk notes. "They complain about the little things, picky things. But if they've got a good strong president or one person who will really take charge, we don't have much of a problem. None of those picky things get to my door."

Not very many of the landscapes are large, but all have irrigation.

Because land is so expensive in the fast-growing Denver area, business owners hesitate to buy much more than they need, hence a minimum need for landscape maintenance. "I bid things by the square foot, not the acre," Dyk observes.

A lack of rain around the "Mile-High City" also creates the necessity

for irrigation. "If you don't have a sprinkler here, you won't have a landscape," Dyk says. "All our clients have sprinkler systems that we're totally in charge of."

One-trailer beginnings

The landscape division's growth has been steady since it was formed in 1981. It began with one trailer and two employees. Twenty-five people are now employed: seven regular crews, one remedial crew and one sprinkler repair crew.

"One thing that has surprised me—that I feel good about—is the amount of growth," says Dyk. "A lot of it has been on our reputation. I do some 'cold-calling' in the winter, but most of our jobs have been through management companies and developers who know our reputation."

Darrel Bolton, who has been Dyk's assistant for three years, handles the crews, plus assignments, hiring, scheduling and other personnel duties.

The company's inventory of equipment looks like this: ¾-ton four-wheel drive Chevy trucks, HMC/Green Machine blowers and trimmers, Bobcat 21-inch walk-behind mowers, two F.D. Kees riders, one Toro Groundsmaster 52, and four 42-inch Walker riders.

"We recently purchased the Walkers," says Dyk. "We really like them for their mobility and grass-catching ability."

The four-day work week creates a situation where holidays and rain can easily be accommodated.

The company has three licensed pesticide applicators on its payroll, even though insecticide spraying of trees and shrubs is sub-contracted out.

No slack time

Well-organized three-person crews work four 10-hour days a week from May through September.

"The foremen organize crews in such a way that all the members know exactly what their next task is. There's no slack time with people waiting until somebody else is done," Dyk boasts. "They're completely in sync."

The four-day work week creates a situation where holidays and rain can easily be accommodated.

Dyk will hire a minimum of summer help, especially after last year's experience.

"We had to replace seven really sharp kids at the end of August," he remembers. "In one month, we've gone through as many as 13 or 14 people trying to replace those kids. It's really frustrating. It's been a real struggle in the past."

Despite the problems, Allen Keesen Landscaping is a company on the grow. Eldon Dyk, now past his "mid-life crisis," is growing with it.

"This job has been totally different than anything I've ever done," he concludes. "But it's been exciting and challenging."

—*Jerry Roche*

Alan Keesen considers snowplowing a necessary evil—especially high in the Rockies.

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THE EQUIPMENT EVOLUTION

WEEDS TREES & TURF marks its 25th birthday this year. Last month, we looked at the progress of the chemical industry since 1962. Now, we look at mowers—where we've been and where we're going.

by Heide Aungst, associate editor

It's a story that could begin with "once upon a time..."

The tale of the first lawn mower begins 157 years ago with a man named Edwin Budding, in the faraway land of Stroud in Gloucestershire, England.

Budding was an engineer in charge of installing machines that sheared the nap off cloth. Those machines gave him the idea for using the same principle to cut grass.

Legend has it that Budding tested his machine only at night, fearful of what his neighbors might think.

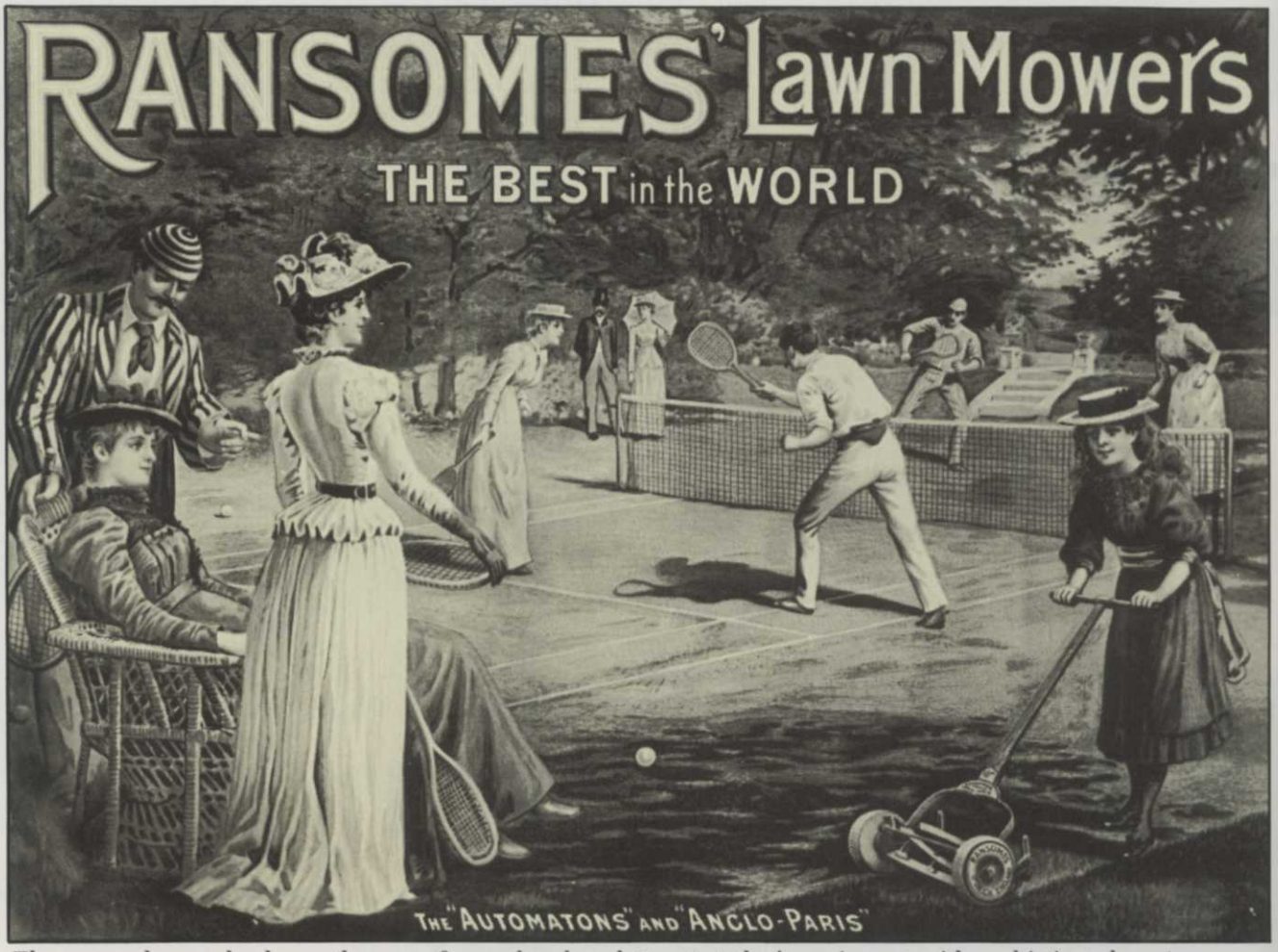
He developed a mower with a cutting width of 21 inches. The patent specification, signed on Oct. 5, 1830, states, "Country gentlemen may find using my machine themselves an amusing, useful and healthy exercise."

Two years later, Ransomes started manufacturing it under license. Within 20 years, Ransomes had manufactured 1,500 machines, improving upon the original concept.

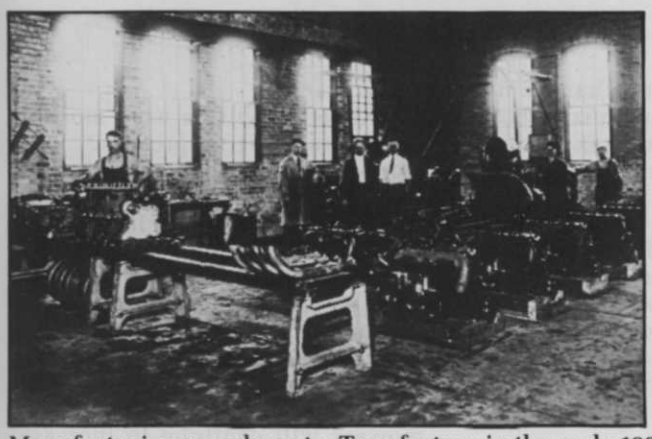
In fact, James Edward Ransome, grandson of the founder, is credited with inventing the first motor mower in 1902.

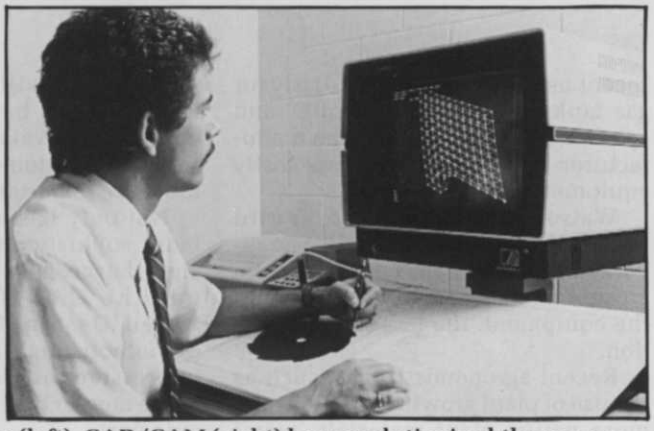
So that's how it all began...

But Ransomes, which remains the leading mower manufacturer in Europe, didn't open operations in the United States until 1978, when it



The mower has evolved over the years from a hand push type to today's equipment with sophisticated engines, hydraulics and new synthetic materials.





Manufacturing was slow at a Toro factory in the early 1900s (left). CAD/CAM (right) has revolutionized the mower industry.

bought out the old Wisconsin Marine Co.. "We have made great inroads in the U.S., but we're still third," says Dick Lehman, executive vice-president of Ransomes.

Dominant force

The companies dominating mower manufacturing in the United States are Toro and Jacobsen. Each has a lengthy history of its own.

Toro was founded in the early 1900s as the Bull Tractor Co., but turned to turf in 1922 when a golf course superintendent suggested the company design a tractor-towed gang mower for fairway maintenance.

Jacobsen got its start in 1921 by manufacturing a mower that covered four acres a day.

Although about 100 companies manufacturer mowers today, Jacobsen and Toro are the strongholds with bragging rights on numerous mower innovations.

For example, Toro invented the first electric starting mower and the first rotary mower with a bagging attachment. In 1969, Jacobsen was first in the market with a triplex, power-driven, hydraulic-drive greens-mower.

But who invented what isn't as important as the general evolution of the mower. People who have observed the progress first-hand say that within the last quarter-century the modern mower has evolved.

Modern mower

Dr. Jim Watson, vice-president of Toro, had already been with the company a decade when WEEDS AND TURF hit the market in 1962. (It became WEEDS TREES & TURF in '64).

"We had just begun to get into the consumer end," Watson recalls. "It was about 65 percent reel, 35 percent rotary. The switch came in the early '60s. Today, the consumer market is 100 percent rotary."

The golf course market, Watson says, saved close to 75 percent in labor costs by switching from walk-behinds to triplex mowers in the late '60s. "The triplex was developed because of an increase in play and a decrease in the time the superintendent had to get the job done with all the people out there," Watson explains.

But now at many private clubs, the pendulum is swinging back.

"A number of courses are going back to walking greens," says Roger Thomas, who retired as vice president of marketing for Jacobsen a year ago after 39 years of service. Thomas still consults with the company.

Changes in cultural management have directly led to changes in equipment. Thomas cites the example of closer fairway mowing which requires more sophisticated equipment. Some superintendents are even beginning to mow fairways with triplexes.

Watson points to the development of the Stimpmeter and its use in the last decade. Golfers demand faster greens which makes lower cuts a necessity.

Both men agree that the biggest change in equipment is in the application of hydraulics.

"It was quite an innovation in the industry," Thomas says. "Originally there was a problem with oil leaking, but that didn't take long to solve."

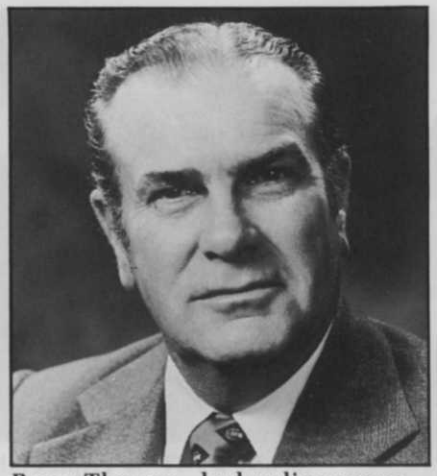
Thomas says the use of hydraulics provides a smoother cut, while putting parts through less wear.

Within the time Ransomes has been in the U.S., Lehman says the biggest change he's observed is lightweight mowing equipment, particularly for fairways.

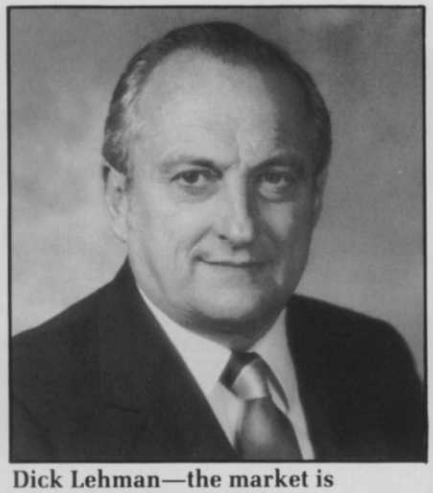
"Lighter equipment has given us the opportunity to go wider for less money," Thomas says.

Other specific changes in parts include flotation tires which were developed in the early '70s and the more

Dr. James Watson—lightweight equipment is agronomically beneficial.



Roger Thomas—hydraulics was an innovation in the industry.



Dick Lehman—the market is growing at a six percent rate.

recent use of plastics, particularly for gas tanks. The use of "exotic" and synthetic materials allows the manufacturer to design lighter, less costly equipment.

Watson views the trend toward lightweight, precision, highly maneuverable equipment as beneficial from an agronomic standpoint. The lighter the equipment, the less soil compaction.

Recent agronomic trends, such as the use of plant growth regulators and more native plant materials, won't hurt the equipment industry, Watson says. Manicured turf will remain popular in some areas.

High tech

Computerization and electronics will probably be used more frequently in the mower's controlling system, but high tech has had the most impact on mower design. "Because of high tech, mechanics have to be much more qualified than they used to be," says Rogers.

Not only will mechanics need more training, but with complicated equipment, Watson says, company service to customers will become all the more important.

Not only has equipment become more sophisticated, but so has design. Large mower manufacturers use the CAD/CAM (Computer Aided Design/Computer Aided Manufacturing), a complicated and impressive program which can design a mower down to its most miniscule part.

"It's the wave of the future," Watson says. "The advancements in designing take away from the labor intensive drawing board."

Future shock

Robot lawn mowers...mowers floating on a cushion of air...mowing lawns with lasers...all have been suggested as the answers to future mowing problems. And, despite current research, all three men say that such changes are more than 25 years away, if at all.

"Robotics will be used more in the manufacturing process," Watson says. "But we have a long way to go before it will be practical as a mower from safety and liability aspects."

"I don't think growth will be as large as during the past 20 years," Lehman says. "The market is still growing at a six to seven percent rate."

Watson does say the use of riding mowers will continue to increase, since it leaves more leisure time for the user.

"When I give a talk on the future of the industry, I say the industry needs to take a look at the equipment currently available, and the equipment 25 years from now will be basically the same," Watson says. **WT&T**

Next month, WT&T looks at the history and future of irrigation seed and golf.

Ransomes has introduced its first all-hydraulic triplex greensmower. The new Greens Triple (above) is out this spring.

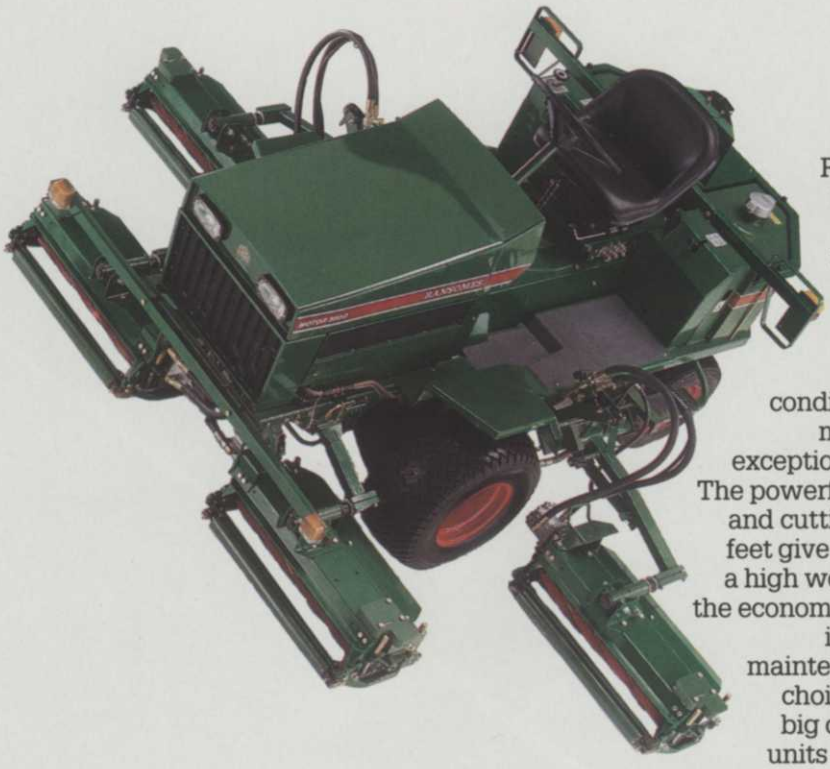
In 1969, Jacobsen introduced its Greens King (left), the first power-driven hydraulic drive greensmower.

Jacobsen's TF-60 Triplex (above) represents modern lightweight equipment.

This photo (left) taken in the early '60s shows Toro's Parkmaster, one of the first models to use hydraulics.

Unerring accuracy is a must in negotiating the eighth at Ken Venturi's Eagle Creek Country Club, Naples, Florida.

Grounds for Ransomes.



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PRE-EMERGENCE WEED CONTROL OF COOL-SEASON TURF

Correcting weed problems is a five-step process, one of which is selecting the right herbicide. Pre-emergence materials are what the cool-season turf manager should be applying early in the spring.

by Dr. Robert Shearman, University of Nebraska

A complete weed control program includes both pre- and post-emergence herbicides, as well as cultural practices. Correcting weed problems requires:

- proper weed identification;
- knowledge of the weed's life cycle (i.e. annual vs. perennial);
- understanding how the weed obtained its competitive advantage;
- use of proper cultural practices; and
- selection of the right herbicide, when needed.

Primary partners

The primary pre-emergence herbicides for grassy and broadleaf weeds in cool-season turf are benefin, bensulide, DCPA, pendimethalin, oxadiazon and siduron.

Siduron is the only pre-emergence herbicide that can be applied near time of seeding. Bensulide and DCPA can be applied in the spring following a fall seeding.

Pre-emergence herbicides should be watered in so the chemical can form a barrier in the soil prior to weed seed germination.

The resulting chemical barrier should not be disturbed during key weed germination periods.

The herbicides should be applied two weeks prior to the expected weed seed germination period. Second applications may be necessary to provide control over the entire germination period. Second applica-

Pre-emergence herbicides can give effective annual grass control (right) when the appropriate herbicide is selected and applied according tolabel directions.

tions may be necessary to provide control over the entire germination period. Contact your local university or industry turf specialist for germination times of primary weeds.

The differences

Turfgrass pre-emergence herbicides differ in soil longevity, weed control efficacy, and potential turfgrass injury. Benefin is generally considered to be shorter-lived in soils than bensulide or pendimethalin; while DCPA is considered to be intermediate. Concentration of the initial application is important in terms of maintaining pre-emergence herbicide soil concentrations.

Pre-emergence herbicides must maintain a critical soil residual level (threshold value) during the growing season that is conducive for germination of the target weed (i.e., annual bluegrass, crabgrass, foxtail, goosegrass or spurge). Applications made too early in the season may break down in the soil to levels below the threshold value. If this occurs and conditions remain favorable for weed germination, less than desirable control will be obtained.

Maintaining levels

To obtain critical threshold values for the pre-emergence herbicide, adequate application rates must be made or repeat applications must be applied to maintain the threshold level. Initial applications will be dictated by label directions, turfgrass safety, efficacy and economics. In cases where potential turfgrass injury is a concern, light, frequent or split applications may be used to obtain control and minimize potential turfgrass injury.

Consult your local turfgrass specialist for specific information regarding the need for split applications of pre-emergence herbicides in your area. This information should increase its effectiveness and safety of your pre-emergence herbicide program.

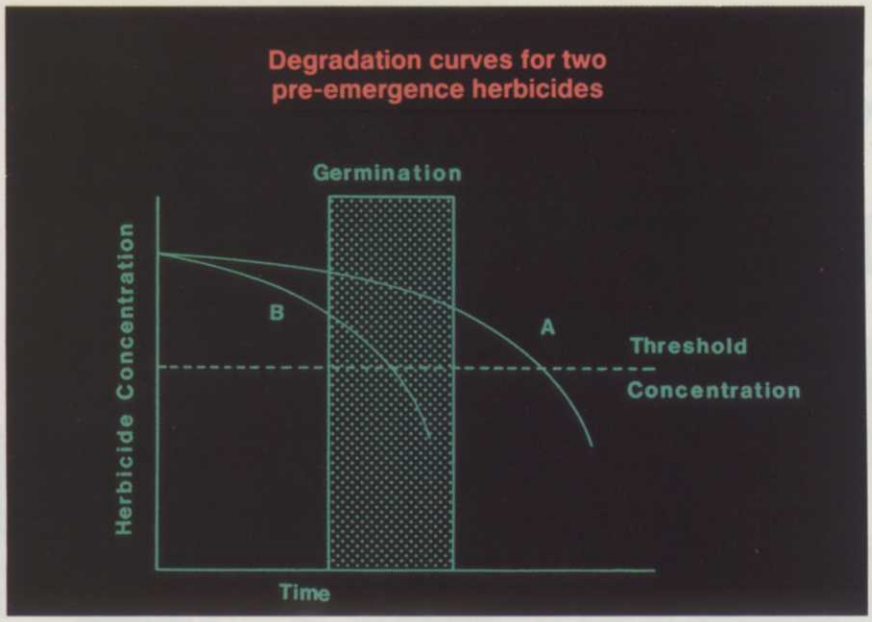
Most turfgrass pre-emergence herbicides are effective in controlling crabgrass. These herbicides may differ somewhat in percent of control. It is wise to check with turf specialists in your region for the most efficacious materials.

Other annuals

Pre-emergence herbicides differ in their ability to control other annual weed problems. For example, DCPA and pendimethalin effectively control prostrate spurge; while benefin and bensulide are ineffective in controlling this troublesome weed. Bensulide, at concentrations normally applied for crabgrass control, is not as effective in controlling foxtail as is DCPA or pendimethalin. Oxadiazon is more effective for goosegrass control than DCPA. Pendimethalin has good to excellent efficacy for all the annual warm-season species.

It is essential to apply pre-emergence herbicides uniformly to the area. These herbicides are bound in the soil by clay and organic matter and have limited lateral movement. Skips in application allow the target weed to escape, germinate and produce additional seed, thus disrupting turf quality. Careful application is important, making sure to follow label directions and to calibrate application equipment prior to treatment. This will give the safest, most efficacious control from the herbicide selected at the most economic rate.

Turfgrass managers should keep in mind that successful pre-emergence herbicide programs result from selecting the appropriate herbicide, and applying it uniformly at the appropriate rate and time. **WT&T**



Pre-emergence herbicides differ in their ability to maintain effective soil residual concentrations (i.e., Herbicide A vs. Herbicide B). When values drop below the "threshold" level, effective weed control is lost. In this case, Herbicide B requires a second application to maintain effective weed control.

PRE-EMERGENCE HERBICIDES FOR WARM-SEASON TURF

by Tim R. Murphy

Successful weed control programs in warm-season turf depend on the development of a two-phase control strategy by the professional turf manager.

The first phase involves the use of cultural practices and insect and disease control programs that promote a dense, vigorous turf cover. Adequately maintained turf is less susceptible to a high level of a weed infestation than poorly maintained turf.

Prior to the use of any herbicide, cultural practices—adequate fertilization, irrigation, cultivation and correct mowing height and interval—should be matched to the needs of a particular turfgrass species. Addition-

Tim Murphy is an extension agronomist in weed science for The University of Georgia.

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ally, insect and disease problems should be eliminated. Strict reliance on herbicides without regard for the contribution of other management practices to the total weed control program does not result in a high-quality, aesthetically appealing turf.

The second phase of a weed control strategy involves the use of pre-emergence and post-emergence herbicides. Pre-emergence herbicides are applied prior to weed seed germination and generally have little, if any, activity on emerged weeds. In contrast, post-emergence herbicides are applied directly to the foliage of emerged weeds and have no or minimal residual activity on non-emerged weeds. Although the majority of herbicides may be classified as either pre-emergence or post-emergence, atrazine and simazine are exceptions. These herbicides have both pre-emergence and post-emergence activity on a wide variety of winter annual weeds.

Pre-emergence herbicides form the base of the chemical weed control program and are used primarily to control annual grasses and certain annual broadleaf weeds. This group of weeds can be controlled with post-emergence herbicides; however, two or more applications are usually necessary and a possibility exists that the turf may be discolored or injured for a short time after application.

Generally, pre-emergence herbicides are safer to apply to warm-season turf, and often only one application is necessary. Therefore, pre-emergence herbicides are the preferred method for controlling annual grass and certain annual broadleaf weeds. Post-emergence herbicides should be relied upon to control perennial grass and broadleaf weeds that are not controlled by pre-emergence herbicides.

Pre-emergence herbicides are applied in the spring for crabgrass and goosegrass control and in the fall months primarily for annual bluegrass control.

Since most pre-emergence herbicides are not effective against emerged weeds, applications must be made prior to weed seed germination. Late February to early March applications generally provide better crabgrass control than later applications. However, in the cooler, mountainous regions of the South, the spring application may be delayed until late March.

For annual bluegrass, late August to early October applications are used, depending on the geographical location. Pre-emergence herbicides require rainfall or irrigation water to move them into the zone of maximum weed seed germination (e.g. the upper one to two inches of the soil profile). Recommendations vary slightly among the different pre-emergence herbicides, but unless one-fourth to one-half inch of rainfall occurs within seven days, the herbicide should be irrigated in the top two inches of the soil profile.

Removal of heavy thatch by cultivation (aerification, verticutting, etc.) prior to herbicide application will improve spray penetration through the turf canopy and increase herbicide contact with the soil. Cultivation after a pre-emergence herbicide application is not recommended since it may decrease the effectiveness of the herbicide.

In past years, there were only about four or five pre-emergence her-

Table 1. Directory of turfgrass pre-emergence herbicides.

Common Name	Trade Name(s)	Formulations[1]	Company
Atrazine	Aatrex	80W, 90DG, 4L	Ciba-Geigy
	Purge	4L	Security
Benefin	Balan	2.5G	Elanco
	2.5 Benefin Granular	2.5G	Lesco
Benefin + Oryzalin	XL	2G	Elanco
Benefin + Trifluralin	Team	2G	Elanco
Bensulide	Betasan	2.9E, 4E, 3.6G, 7G, 12.5G	Stauffer
	Lescosan	4E, 7G, 12.5G	Lesco
	Weedgrass Preventer	8.5G	Scotts
	Pre-San	4E, 7G, 12.5G	Mallinckrodt
	Bensumec 4LF	4E	PBI Gordon
Bensulide + Oxadiazon	Goosegrass/Crabgrass Control	5.25G + 1.31G	Scotts
DCPA	Dacthal	75W	Fermenta
	Dacthal	5G	Lesco
Ethofumesate	Prograss	1.5E	Nor-Am
Fenarimol	Rubigan	50W	Elanco
Napropamide	Devrinol	50W, 5G	Stauffer
Oryzalin	Surflan	4AS	Elanco
Oxadiazon	Ronstar	50W, 2G	Rhone-Poulenc
Pendimethalin	Southern Weedgrass Control	2.45G	Scotts
	Turf Weedgrass Control	1.71G	Scotts
	Weedgrass Control	60DG	Scotts
	Pre-M	60DG	Lesco
	Pendimethalin	60DG	Clean Crop
Pronamide	Kerb	50W	Rohm-Haas
Siduron	Tupersan	50W	Du Pont
Simazine	Princep	80W, 90DG, 4L, 4G	Ciba-Geigy

[1]W = Wettable powder; DG = Water dispersable granule; L = Liquid; E = Emulsifiable concentrate; G = Granule.

Table 2. Tolerance of warm-season turfgrasses and tall fescue to pre-emergence herbicides.

	Turfgrasses					
Herbicide	Bahia	Bermuda	Centipede	St. Augustine	Tall Fescue	Zoysia
Atrazine	NR	I	T	T	NR	I
Benefin	T	T	T	T	T	T
Benefin + Oryzalin	T	T	T	T	T	T
Benefin + Trifluralin	T	T	T	T	T	T
Bensulide	T	T	T	T	T	T
Bensulide + Oxadiazon	NR	T	NR	NR	T	T
DCPA	T	T	T	T	T	T
Ethofumesate	NR	I	NR	NR	NR	NR
Napropamide	T	T	T	T	T	NR
Oryzalin	T	T	T	T	T	T
Oxadiazon	NR	T	NR	T	T	T
Pendimethalin	T	T	T	T	T	T
Pronamide	NR	T	NR	NR	NR	NR
Siduron	NR	NR	NR	NR	T	NR
Simazine	NR	T	T	T	NR	T

T = Tolerant; I = Intermediate tolerance, apply to dormant grass; NR = Not Registered for use.

There's no better value for crabgrass control than Balan. And none with more experience. It's been used more years by more golf course superintendents than any other granular preemergence herbicide.

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The better spreader for crabgrass control.

bicides available for use on warm-season turf. However, 16 are now registered for use on Southern turf (Table 1).

The selection of which to use should be based on (a) turfgrass tolerance and (b) the weed species composition of a particular site. Herbicide selection based solely on cost may result in possible turf injury and/or the additional expense of a follow-up post-emergence herbicide treatment.

Turfgrass tolerance

Warm-season turfgrasses and tall fescue vary in their tolerance to pre-emergence herbicides (Table 2). For example, with the exception of spring greenup, centipede and St. Augustine have excellent tolerance to atrazine at all times of the year. Zoysia and bermudagrass are tolerant to atrazine when dormant, but may be discolored or injured if applications are made at other times of the year. Tall fescue is highly susceptible to severe injury from atrazine. Also, bahiagrass will be injured from pre-emergence applications of this herbicide.

Summer annual weed control

Crabgrass (large, smooth, Southern) and goosegrass are commonly found in Southern turf. With the exception of atrazine, pre-emergence herbicides applied in the spring months provide good to excellent crabgrass control (Table 3).

Goosegrass tends to sporadically germinate during the long growing season of the South and is more difficult to control than crabgrass. Oxadiazon, napropamide and bensulide + oxadiazon have provided high levels of goosegrass control in tests conducted in Georgia. Benefin + oryzalin, oryzalin and the various formulations of pendimethalin have also provided fair to good control of goosegrass with a single application at recommended rates.

Split applications of oryzalin and pendimethalin are being evaluated in Georgia and usually have provided better goosegrass control than a single application.

Sandbur is an occasional problem in warm-season turf. It can be controlled with spring applications of benefin + oryzalin, bensulide, napropamide, oryzalin, and pendimethalin.

Certain pre-emergence herbicides can also be selected that provide control of prostrate spurge and prostrate knotweed.

Winter annual weed control

Similar to summer annual weed control, pre-emergence herbicides vary in their effectiveness on winter annual weeds. Bensulide has generally not provided the high level of annual bluegrass control that has been observed with other pre-emergence herbicides (Table 4).

Common chickweed and henbit are easily controlled by pre-emergence applications of benefin, benefin + oryzalin, oryzalin, or pendimethalin. Additionally, common chickweed can be controlled with DCPA, ethofumesate, napropamide, and pronamide. Herbicides that have effectively controlled parsley-piert are bensulide and oxadiazon. Napropamide is effective for spurweed control. Good to excellent corn speedwell control can be obtained with benefin, DCPA, napropamide, oxadiazon and pronamide. Atrazine and simazine provide effective pre-emergence or post-emergence annual bluegrass and winter annual broadleaf weed control (Table 4).

The wide time period of application for these herbicides offers tremendous scheduling flexibilty for the professional warm-season turf manager.

Overseeded bermudagrass

On bermudagrass that is overseeded with annual or perennial ryegrass, fenarimol or ethofumesate may be used for annual bluegrass con-

Table 3. Summer annual weed control ratings for pre-emergence herbicides.

Herbicide	Crabgrass spp.	Goosegrass	Sandbur	Prostrate Spurge	Prostrate Knotweed
Atrazine	P	P	P	E	E
Benefin	E	F	F	P	P
Benefin + Oryzalin	E	F-G	G	L	L
Benefin + Trifluralin	L	L	—	—	—
Bensulide	E	P	G	P	G
Bensulide + Oxadiazon	E	G	—	—	—
DCPA	E	F	F	P	G
Napropamide	E	G	G	—	L
Oryzalin	E	F-G	G	L	L
Oxadiazon	G	E	F	P	G
Pendimethalin	E	F-G	G	L	—
Siduron	G	P	—	P	P
Simazine	G	P	—	G	G

E = Excellent, ≥ 90% control.
G = Good, 80 to 89% control.
F = Fair, 70 to 79% control.
P = Poor, <70% control.
L = Weed species is listed on the hericide label, but has not been evaluated by the University of Georgia.
— = Weed response is not known.

Table 4. Winter annual weed control ratings for pre-emergence herbicides.

Herbicide	Annual Bluegrass	Common Chickweed	Henbit	Parsley-Piert	Spurweed	Corn Speedwell
Atrazine	E	E	E	E	E	E
Benefin	E	G	G	P	P	E
Benefin + Oryzalin	E	L	L	—	—	—
Benefin + Trifluralin	L	—	—	—	—	—
Bensulide	F	P	P	E	P	P
DCPA	G	E	F	P	P	E
Ethofumesate	G	L	—	—	—	—
Fenarimol	G	—	—	—	—	—
Napropamide	G	E	P	P	E	E
Oryzalin	G	L	L	—	—	—
Oxadiazon	G	P	P	E	P	G
Pronamide	E	E	P	P	P	E
Pendimethalin	G	L	L	—	—	—
Simazine	E	E	E	G	E	E

E = Excellent, ≥ 90% control.
G = Good, 80 to 89% control.
F = Fair, 70 to 79% control.
P = Poor, <70% control.
L = Weed species is listed on the herbicide label, but has not been evaluated by the University of Georgia.
— = Weed response is not known.

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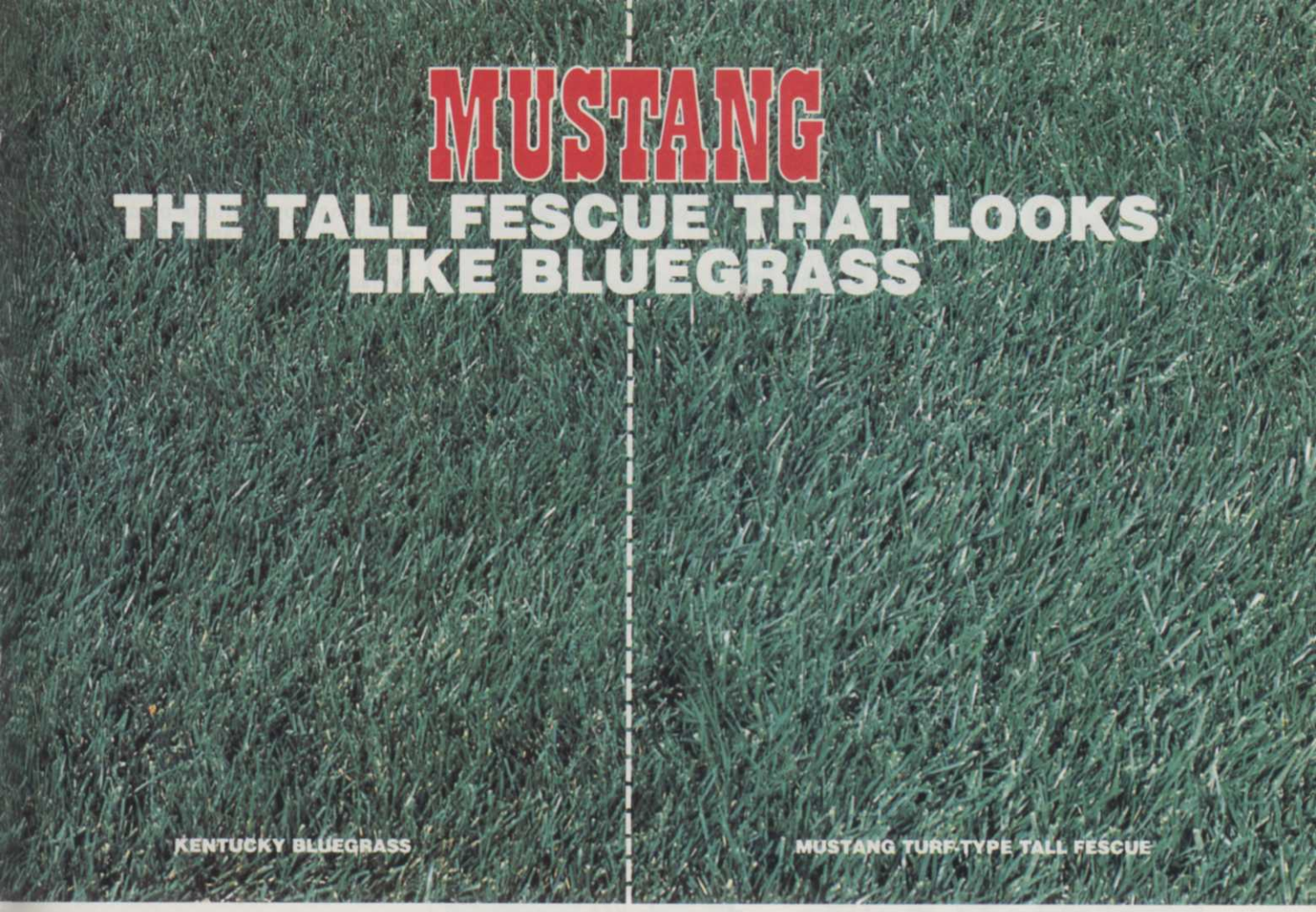

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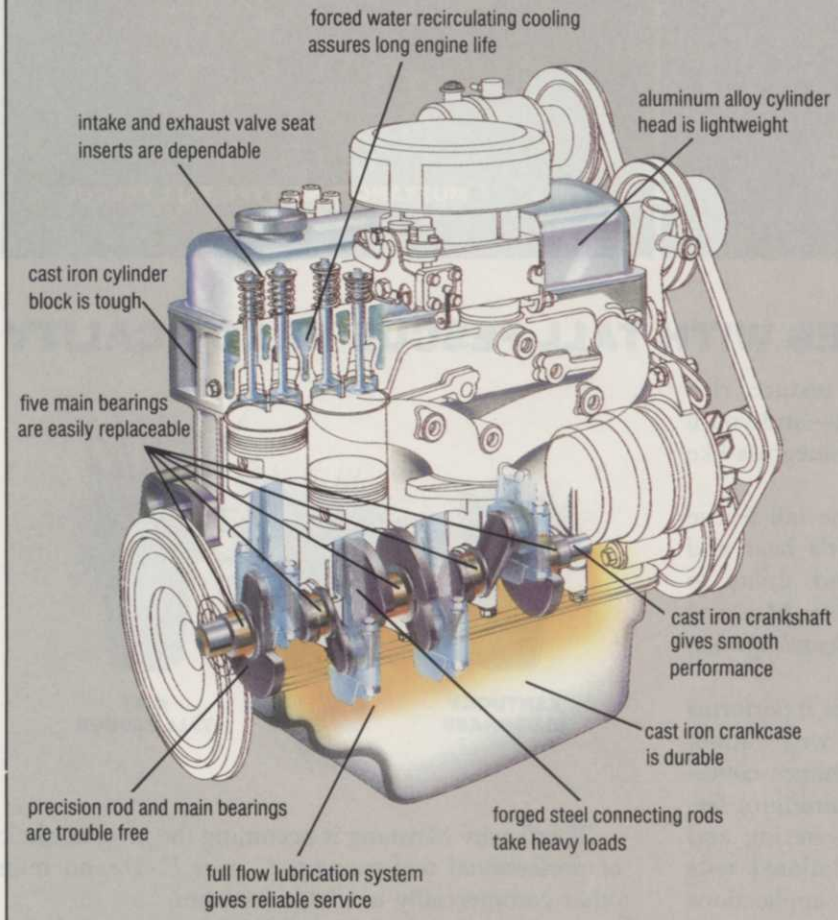

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trol. Ethofumesate should only be applied to bermudagrass that is completely dormant. Ethofumesate applications to bermudagrass that is not completely dormant have shown to delay greenup the following spring.

Spring applications of oryzalin, orvzalin + benefin and pendimethalin have shown to decrease the stand of overseeded ryegrass. In some years, overseeded ryegrass may persist for longer than the desired time period and provide competition to bermudagrass that is breaking dormancy. These herbicides are currently being evaluated for their possible role in improving the transition of a cool-season to a warm-season grass in overseeded golf course fairways.

Summary

Pre-emergence herbicides represent the backbone of the chemical weed control program. Post-emergence herbicide use will be necessary if perennial grass or perennial broadleaf weeds infest the site. However, pre-emergence herbicides offer the professional turf manager more than crabgrass, goosegrass and annual bluegrass control. Careful study of weed response charts or the herbicide label will enable the selection of a pre-emergence herbicide to control these annual grasses and certain annual broadleaf weeds. **WT&T**

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Long	

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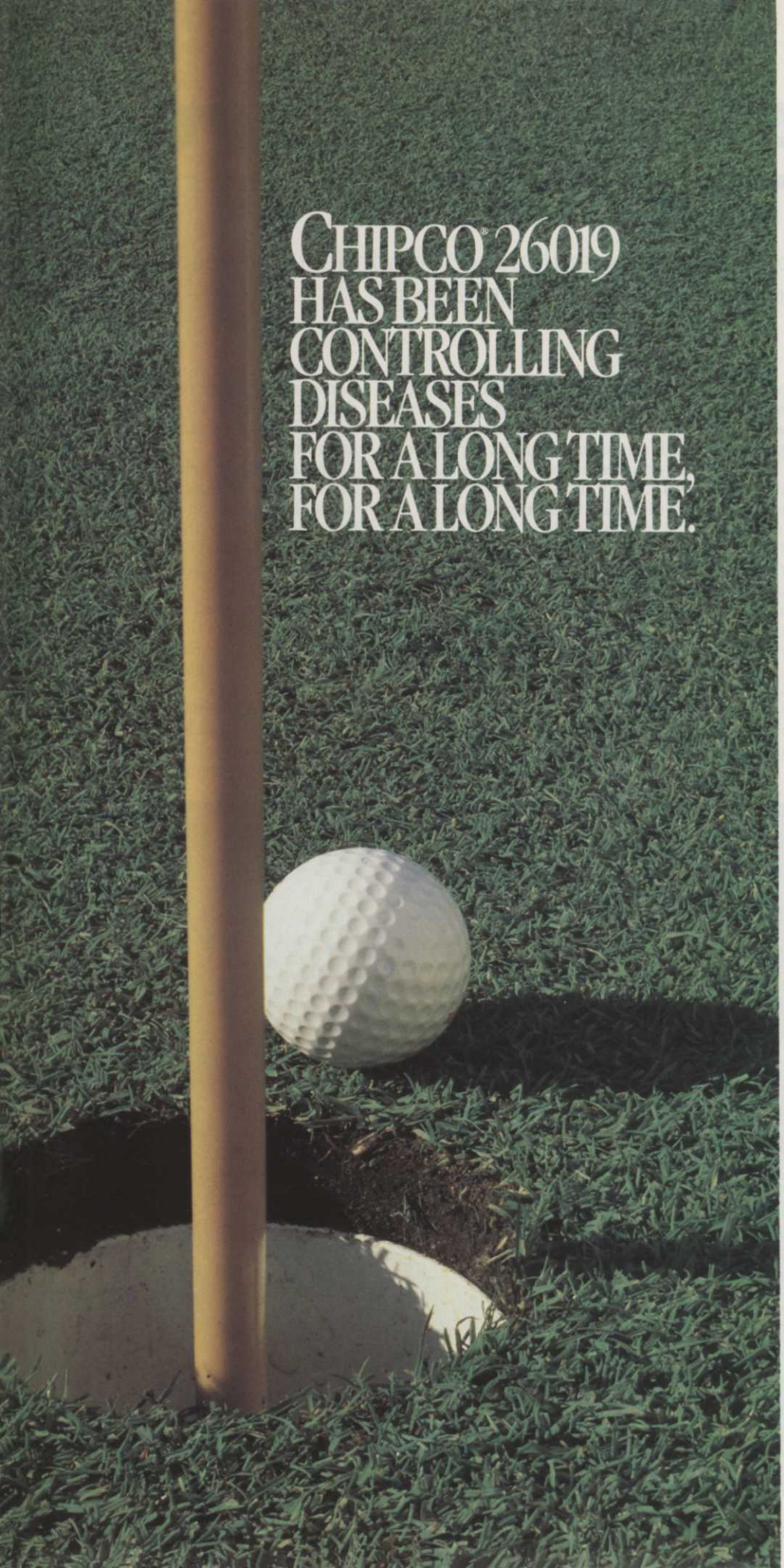

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THE LANDSCAPE EXPO: YEAR TWO

The Landscape Expo has seen exceptional growth in just one year, making it one of the largest industry trade shows.

More than 5,000 people will visit the 1987 edition of the Landscape Exposition, March 3-5 in the O'Hare Exposition Center, Rosemont, Ill.

The 5,000 figure will double the attendees of last year's inaugural Expo, according to Expo administrators. More than 225 exhibiting companies will cover more than 50,000 sq. ft. of exhibit space, a 20 percent increase from the first show.

The Expo has the backing of the PGMS, PLCAA, ALCA and the Illinois Landscape Contractors Association.

Supporting the trade show will be a greatly expanded schedule of educational sessions (see following page) featuring some of the green industry's leading experts.

Fernando Bensuaski, managing partner in Bensuaski, Delana & Luce, kicks off the educational program with a speech about buying and leasing options for new equipment. A second talk by Bensuaski will deal with acquiring and keeping capital.

Consultants Ed Wandtke and Rudd McGary of All-Green Management Associates will discuss the logisitics of setting up an employee training program, as well as what the program should include. In other sessions, the two will address business aspects of the industry such as employee relations, marketing and pricing.

Jim Leatzow, president of Leatzow Agency/Financial Guardian, and Richard Lehr, a partner with Sirote, Permutt, et. al., will deliver a pair of two-part programs, one on preventing problems incurred by parks and playgrounds, and another on avoiding lawsuits.

In a related speech, LAWN CARE INDUSTRY magazine editor Elliot Maras will deliver a talk on avoiding conflict with the media. With recent problems the lawn care market has been facing with the media, this session comes at the perfect time.

Industry consultant Charles Vanderkooi will give a three-part program based on his book *Estimating & Management of Principles for Landscape Contractors*.

Dr. Martin Petrovic of Cornell University will present a session on effective turf management, and how it can help preserve groundwater supplies.

In a second session, Dr. Petrovic will talk about thatch, its good and bad points, and how to develop an effective thatch management program.

Two Wednesday sessions will discuss herbicides of the future and challenges facing plant growth regulators.

Landscape contractor Ron Kujawa, president of Kujawa Enterprises, Inc., will talk about how to motivate top personnel, and how to keep them in the business. Sally Kujawa, vice-president of the company, will talk about the ever-increasing role of computers in the landscape business.

Many other educational sessions will be presented.

Since interest in the Expo is great, hotel and travel arrangements should be made promptly. The Hyatt Regency O'Hare is the Expo's head quarter hotel. The Hyatt is adjacent to the O'Hare Exposition Center.

Travel Planners, Inc., is the official travel agency for the Landscape Expo. Reduced rates are being offered on flights for Expo participants. Seats will be going fast. To get the best seat, call today at (800) 221-3531. For more information on attending, call (800) 243-2815 or in Connecticut (203) 853-0400.

Educational Sessions

Tuesday, March 3, 1987

8 a.m. to 9:20 a.m., concurrent sessions:

- Determining Whether to Buy or Lease Equipment
- Turfgrass Management Effects on Groundwater Quality
- Development and Implementation of an Employee Training Program (Part I of a Three-Part Series)

2 p.m. to 3:20 p.m., concurrent sessions:

- Assuring Protection Against Lawsuits (Part I of a Two-Part Series)
- All About Thatch
- Avoiding Conflict With the Media
- Development and Implementation of an Employee Training Program (Part II)

3:45 p.m. to 5 p.m., concurrent sessions:

- Assuring Protection Against Lawsuits (Part II)
- Motivating and Keeping Top Personnel
- Development and Implementation of an Employee Training Program (Part III)

Wednesday, March 4, 1987

8 a.m. to 9:20 a.m., concurrent sessions:

- Computers: Finding the Right System for You
- Controlling Vandalism
- Estimating & Management of Principles for Landscape Contractors (Part I of a Three Part Series)

2 p.m. to 3:20 p.m., concurrent sessions:

- Acquiring & Keeping Capital
- Herbicides for the Future
- The Parks & Playgrounds Crisis (Part I of a Two Part Series)
- Estimating & Management of Principles for Landscape Contractors (Part II)

3:45 p.m. to 5 p.m., concurrent sessions:

- Hiring, Firing & Compensation
- The Parks & Playgrounds Crisis (Part II)
- Estimating & Management of Principles for Landscape Contractors (Part III)
- The Challenge of Plant Growth Regulators

Thursday, March 5, 1987

8 a.m. to 9:20 a.m., concurrent sessions:

- Stretching a Limited Budget
- Labor: How Much Does It Really Cost?

2 p.m. to 3:20 p.m., concurrent sessions:

- Understanding Marketing
- Developing Trees that Survive Urbanization

3:45 p.m. to 5 p.m., concurrent sessions:

- Pricing Services to Assure Profit
- Assesssing & Managing Risks to Pets

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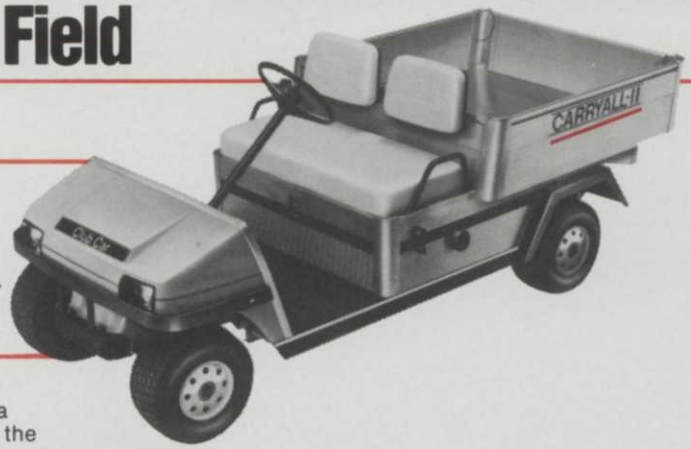
Club Car's New Carryall II Will Out-Tough Any Utility Vehicle In The Field



Out-Perform

Everything about the new Carryall II - the body, truck bed, power and drive train, accessories - has been designed with exclusive Club Car features to enhance performance, durability, reliability and safety. The Carryall II will out-perform competitors in every category.

Out-Haul

With the largest pickup bed (50" x 50" x 11") and biggest gross payload (one-half ton) in the industry, plus a standard trailer hitch with a towing capacity of 1,000 lbs., the Carryall II becomes the most functional, practical and economical vehicle around.

Out-Last

Club Car exclusives like the Rust-Free Aluminum Pickup Bed & Frame*, heavy duty front bumper and side rub rails and Double Wall Pickup Bed Construction* of lightweight durable aluminum allows for a longer, more productive life span.

Out-Pull

Club Car's 4 Cycle/341 cc Engine*, the largest in the industry, gives the Carryall II the power to haul ½ ton loads without stress and vibrations.

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The Carryall II is designed to maneuver in tight aisles and small spaces with a clearance of 20'8", the tightest in the industry.

*Carryall II Exclusive Features.

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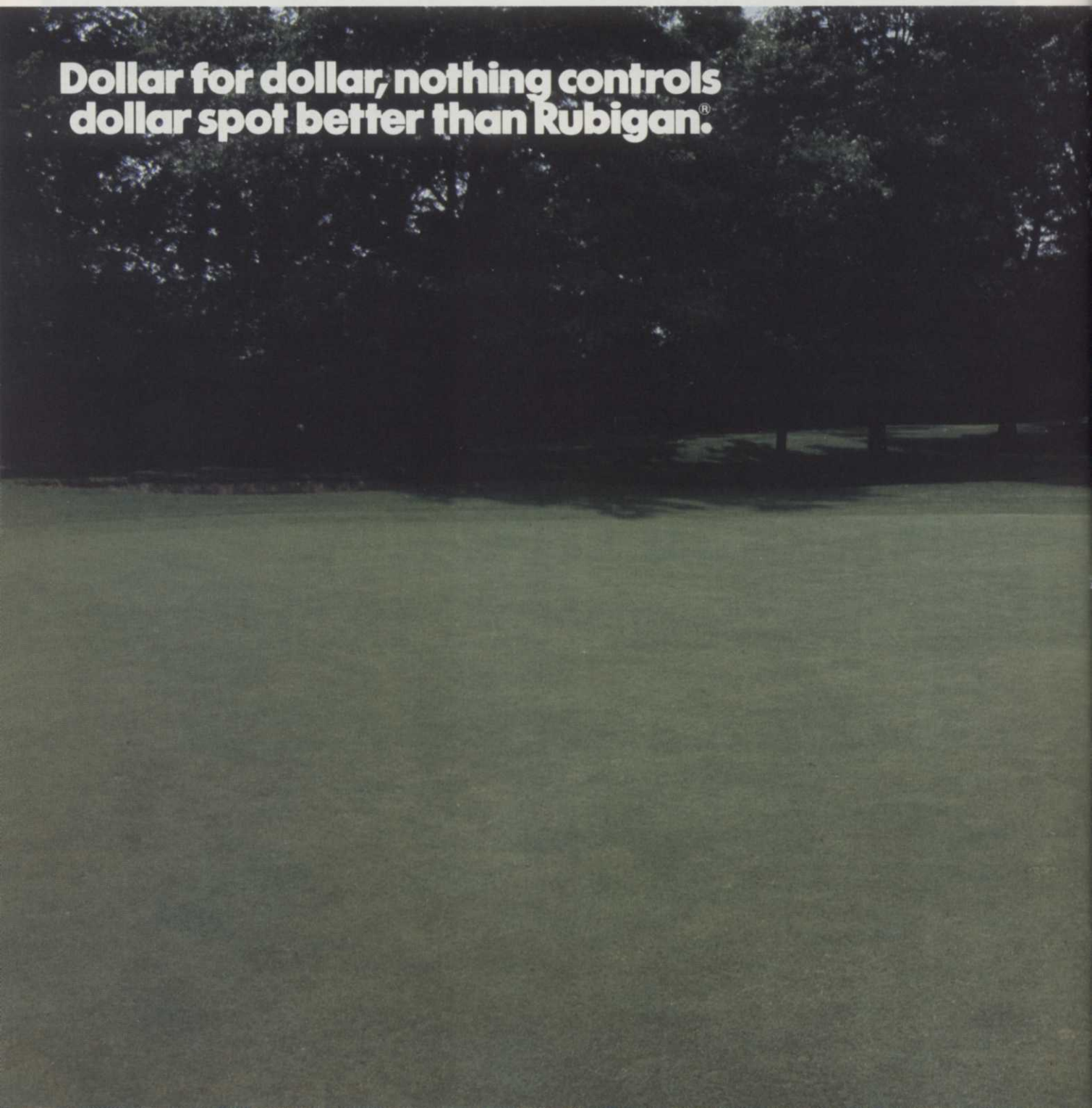
Dollar spotless.

Look closely at this course. No dollar spot in sight. Not even resistant dollar spot, thanks to Rubigan.

Rubigan controls dollar spot on your tees, greens and fairways for only about 10 cents per 1,000 square feet. That's all.

Just one application gives you a full 28 days control. Apply only 0.4 oz. of Rubigan per 1,000 square feet for dependable 28-day control. Or 0.2 oz. for 14 days. You can't find a better fungicide value than Rubigan.

Now look closer at this course. Notice there's also no fusarium blight,



necrotic ring spot, summer patch or take-all patch. And no large brown patch, either, with a Daconil 2787® tank mix. Nothing but clean, beautiful turf. No other fungicide controls so much for so little.

Only Rubigan is labeled to prevent and treat all these harmful diseases. No wonder Rubigan is the superintendents' choice for dependable dollar spot control in all types of weather.

Once you apply Rubigan, it's absorbed almost instantly through the leaves and roots so it won't wash off. Its multi-sites of inhibition also mean less resistance problems.

This year, make your course look this spotless. Make it dollar spotless with Rubigan. Dollar for dollar, nothing controls dollar spot better. See your Elanco distributor. Or call toll-free: 1-800-ELANPRO. In Indiana, call collect: 317-261-6102.

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YOU CAN PAY ME NOW...

The old oil filter commercial was never more true. By spending a few dollars now on routine equipment maintenance, you won't have to pay a lot more later on repair.

By George Thompson III

The life span of engines and related equipment depends on how they've been maintained. Routine maintenance is easy and simple to do and takes very little time. A basic understanding of the engine on your equipment will help you appreciate the importance of periodic maintenance in protecting your equipment investment.

Most engines on outdoor power equipment are either two-cycle or four-cycle designs which operate using gasoline. Do not confuse this with the number of cylinders. Walk-behind rotary mowers generally have only one cylinder. Larger engines powering large riding mowers or garden tractors could have one or two cylinders (two-cylinder engines are usually referred to as "twins").

All gasoline engines require fuel and proper lubrication to run. They also require air for full power delivery and adequate ventilation to prevent overheating. Any condition which deprives the engine of any or all of these necessities leads to poor performance and possible engine failure.

Whether your engine is of the two- or four-cycle variety, lubrication requirements and procedures differ. The literature that comes with your equipment will tell you which engine type you own. We'll concern ourselves with engines on walk-behind mowers, tillers, riders, garden tractors and leaf blowers found in most equipment storage areas.

Two-cycle engines are lubricated by oil mixed with the fuel. Oil-to-fuel ratios vary considerably among different brands. Typical are ratios from 1:16, 1:20 and 1:25 all the way up to 1:50. Four-cycle engines have a crankcase or sump which must contain the proper amount of oil to bathe the moving internal parts while running. The engine type used is largely a matter of the equipment manufacturer's choice and is often based on product pricing considerations or application.

Routine maintenance will help you protect your investment in your mower and keep it running like new.

Here are some general rules to follow:

1. Lubrication. For two-cycle engines: add oil to the fuel as recommended by the engine manufacturer; mix thoroughly; never use four-cycle automotive oil.

For four-cycle engines: change oil regularly after every 25 hours of operation; use a high grade, high viscosity automotive oil (SAE 10W30 or 10W40); add nothing to the fuel; fill to the level indicated in maintenance instructions; check oil level each time gasoline is added.

2. Fuel. Use fresh clean unleaded gasoline with a minimum octane of 77. Use of lead-free fuels will reduce combustion deposit build-up (an eventual occurrence in any engine). Because of the uncertainty of exact formulation of gasohol and similar fuels, their use is not recommended. Methanol formulations, in particular, are to be avoided because they can easily gum and clog fuel lines and carburetor jets.

3. Air is important too: clean air to mix with the gas in sufficient quantities for optimum combustion and power. The newest innovation for small engines is a larger-capacity pleated paper air cleaner. Proven in automotive and industrial engines for years, their use in small engines offers new levels of protection and convenience. Servicing is easy: remove and replace like automobile filters. More familiar is the oil-foam air cleaner. Oil-foam air cleaner elements can also be cleaned.

- First, wash foam element in kerosene or liquid detergent and water to remove dirt.
- Then, wrap foam in cloth and squeeze dry.
- Finally, saturate foam in engine oil. Squeeze to remove excess oil.

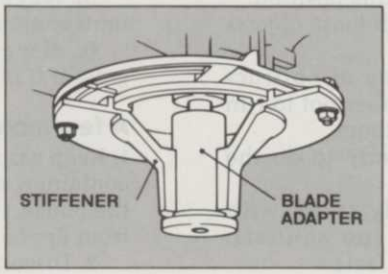
For convenience, pre-oiled replacement foam elements are also readily obtainable. Either air cleaner element style should be checked and cleaned every 25 operating hours or three months, whichever comes first. Dusty or abrasive operating environments require more frequent servicing of the air cleaner. When reinstalling or replacing either air cleaner, make sure that no damage to the outer sealing areas has occurred

George Thompson III is head of public relations for the Briggs & Stratton Corp., Milwaukee, Wis.

We stake our reputation on it.

We're so sure our revolutionary new walk-behind 2-cycle crankshaft system will stand up to what you run into, that we're backing it with an exclusive two-year warranty.

No one else in the industry offers a two-year crankshaft warranty on small trimming mowers. Because no one else has what Jacobsen has. A revolutionary (patent applied for) crankshaft protection device incorporating an adapter and stiffener that help prevent twisting, bending or breakage. Thus, effectively extending engine and equipment life, while maximizing productive cutting time.



In fact, extensive testing showed this unique Jacobsen design to be vastly superior to anything in the market. At full throttle, a solid steel, one-inch shaft was placed in the path of the rotary blade. Competitive crankshafts bent on contact, yet the Jacobsen crankshaft survived. Not once, but again and again, without damage.

Combine the exclusive new Jacobsen crankshaft system with our durable 2-cycle engine, rugged lightweight aluminum magnesium alloy deck, heavy-duty greasable wheels, large five-quart fuel tank and shock-absorbing front bumper and you've got the most reliable commercial walk-behind available. We guarantee it.

So see your nearest Jacobsen Commercial Products dealer for more information and a free demonstration of the industry's most durable walk-behind rotary mower.

Jacobsen Division of Textron Inc., Racine, WI 53403.

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which would render the filter elements useless.

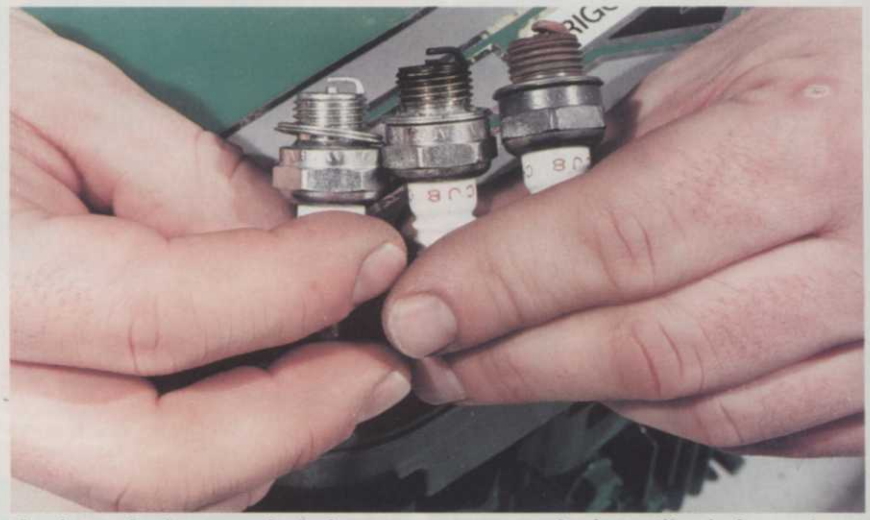
4. Air-cooling. Dirt and debris can enter the blower housing and clog the cooling fins. This causes internal engine temperatures to rise excessively. The resulting overheating can damage critical engine parts beyond repair. For this reason, prevent grass and debris from impacting around fins and corners around the engine by removing blower housing and flushing with air or garden hose manually.

5. Check the blade and deck for wear and possible damage. Before looking under the deck, always ground the spark plug wire. Briggs & Stratton provides a safe, handy ground lug for attaching this spark plug wire. Removing the spark plug will also prevent accidental starting when checking or removing the blade.

6. An engine requires a healthy spark for complete combustion. A worn spark plug robs the engine of power. Spark plugs should be checked periodically. The gap across the electrodes should be reasonably free of combustion build-up and should not be burnt away. (A fouled spark plug gap or burnt-away electrodes after only a few hours operation usually requires the attention of a service technician to determine the cause.) Plugs worn because of prolonged use are best discarded and replaced with correctly gapped original spark plugs. When removing and replacing the spark plug, always protect the cylinder cavity from dirt or debris entering the spark plug hole.

For a professional preventative maintenance check, see your authorized engine repair or outdoor equipment dealer. He can sharpen the blade, provide a power tune-up and make any adjustments or repairs that might be necessary.

Performing these procedures and checks will greatly increase engine performance and life. Should a problem arise, you'll find a competent (repair) service dealer near you, one of the large nationwide network of ser-



Check spark plugs regularly because a worn spark plug will rob the engine of power.

Important safety tips

Thousands of people are treated each year in hospital emergency rooms for lawn mower-related accidents. Most of these accidents are due to carelessness and could be avoided if several rules are followed.

"Probably the most important tip to pass on to customers is to remind them to *never* try to clear the discharge chute with a hand or stick while the blade is operating," says George Thompson of Briggs & Stratton. "While this would seem like common sense to most of us, it is, unfortunately, one of the major causes of lawn mower accidents."

Thompson notes that safety standards introduced by the Consumer Product Safety Commission should help reduce the number of accidents caused by direct contact with the mower blade. Other accidents can be avoided as well, if operators follow these tips:

Before mowing...

1. Adjust the cutting height, check the blade condition, and tighten all loose bolts before starting the mower.

2. Make certain all safety devices are in proper position:

- handle attachment is secure
- gas cap is securely tightened
- rear shield is in place to protect operator's feet
- grass chute deflector is secure and in working position.

3. Gather up all loose objects from the ground.

4. Make a note of obstructions, and remember not to run the mower over them.

5. Dress properly to do the job.

- wear sturdy shoes with non-slip soles (no sandals, sneakers or bare feet).

While mowing...

1. Start your mower outside, and near where you're going to mow. Never push a running mower on gravel.

2. Stay clear of the edge of the blade housing and discharge chute. *Never* try to clear the discharge chute with hand or stick while the blade is operating.

3. Walk-behind mowers should mow across slopes or inclines; riding mowers should go up and down.

4. Watch out for others (especially children) while you are mowing. Never point the discharge chute at anyone.

5. Never leave a running mower alone.

6. Never start cutting the grass if it is wet.

A few more tips...

1. Keep gasoline in an approved container, and store it outside the house, if possible, and away from fire or sparks.

2. Disconnect the spark plug or power cord before doing any work on your mower.

3. Have your mower checked annually by an experienced service person. □

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Circle No. 167 on Reader Inquiry Card

TRAINING SYSTEMS

On-the-job training is the most common method of breaking in a new employee. But it may not be enough.

by Rudd McGary and Ed Wandtke

Almost every organization or company needs some kind of system that will bring new employees up to productive levels efficiently. (The following steps are intended only for new employees, not as a format for management development.)

Much of the training we have seen throughout the green industries has been OJT (on-job-training). This type of apprenticeship training can be valuable if you have trained personnel who can give time to new employees, but it often results in lengthy, incomplete training.

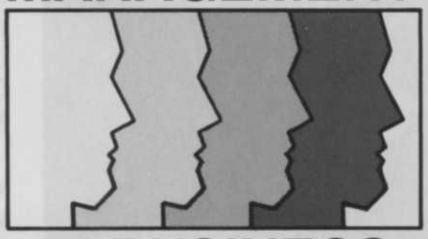
In order to do a complete job of training your new people, you must go through several steps in order to make intelligent decisions about training.

1. Determine what skills or proficiencies are needed by the employee. By listing these specific needs, you're starting a list of the types of training needed. Some companies aren't able to write down job descriptions in a way that makes training possible. This step is the beginning point for all training, but it's an often-overlooked step because it seems obvious to management.

2. Determine the order in which the various skills should be taught. Every job has a set of basics. If these

Wandtke and McGary are senior consultants with All-Green Management Associates in Columbus, Ohio. Dr. McGary focuses on marketing and managenent issues. Wandtke focuses on operations and financial questions.

MANAGEMENT



IN BUSINESS

are taught first, the rest of the training process is much simpler.

3. Determine the skill of people you are going to train. Many companies using OJT as a training system waste valuable time because the employees are thrown into a work function without knowing if they have enough background to understand what they see others do. Simply having someone watch another do work doesn't mean that people understand what they are seeing. You can use written or verbal questions to check on the information and skill level of people coming into the organization. When you know this, you can be effective at training those deficiencies that the people have and not make assumptions on backgrounds of your employees.

4. Determine the training resources in your organization. Some of your current people work extremely well as trainers, others do not. As the manager, you have to make an assessment of those people who do their job well and in addition are able to communicate how they do their job.

A caution here: some people do their job well, but do it "their way." These might be extremely effective people from the standpoint of production, but they also might not be the people that you want to train new employees.

5. Determine methods of training. There are many ways to train people. Written materials, video tapes, OJT, programmed instruction, personal instruction, seminars and formal learning settings are among them.

6. Determine training costs for using the various methods. Two variables should be considered: how much will it cost, and how long will it take? The cheapest method may look good at first, but it may cost you money from a time standpoint. When you are paying an employee and they are ineffective in their work, it is costing you money. Look at the two variables side-by-side and you should be able to find a method that fits into your budget and a timetable for training employees.

7. Finally, determine how you are going to measure the results of the training. If you have a specific goal for the training, you should be able to measure its effectiveness. To check, issue written tests, ask questions, or observe tasks assigned the employee.

Simply having someone watch another doesn't mean they understand what they are seeing.

You must make sure that employees are aware of the intended outcome of the training. By doing so, you set clear, measurable training objectives. This will help them understand why the training is being done, and will give them reachable goals.

Without this final step you are simply training without either of the parties having a realistic way of measuring the effectiveness.

The training process can either be extremely formal or very loose in structure. In many green industries the latter is true.

If you are spending time and money to have your employees trained, you will have to spend time to prepare for that training, or its effectiveness will be unmeasureable and probably expensive. Once the training methods are in place, you should review them regularly to see if you are getting the results you expect. As you see the results of your training, the effort should be well worthwhile. **WT&T**

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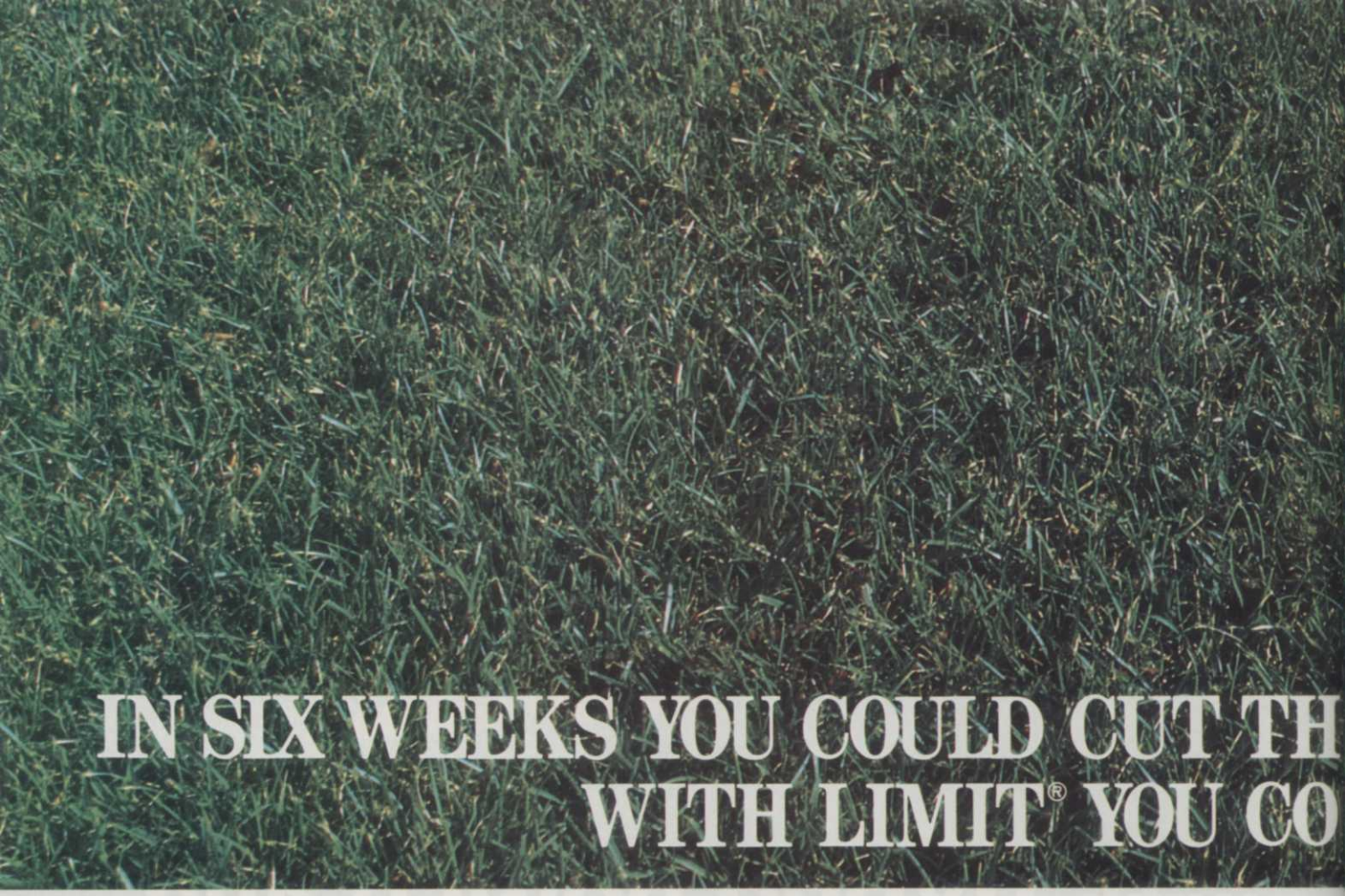

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*Recommended for ryegrass, bluegrass, tall and fine fescues.

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THE EMERALD NECKLACE

The 19,000 acres of Cleveland's Metroparks System provide a challenge even for 350 peak-season workers.

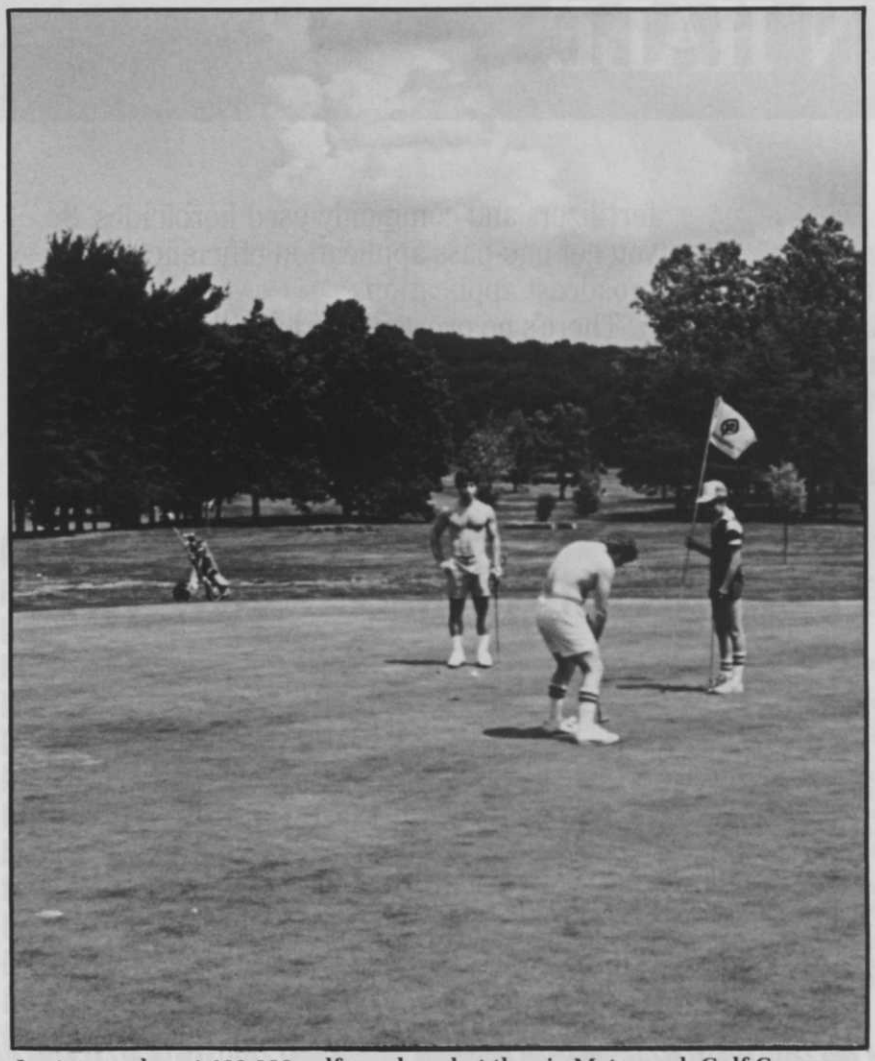
by Carl Kovac

Keeping Greater Cleveland's "Emerald Necklace" sparkling is mostly a case of "if it ain't broke, don't fix it."

It's not an easy job, considering that the "necklace," known officially as the Cleveland Metroparks System, consists of almost 19,000 acres of rolling, wooded hills, valleys and open fields in 12 reservations draped around the eastern, southern and western fringes of Cuyahoga County.

Worked into this scenic strand are more than 100 miles of park roads providing access to wildlife management areas and waterfowl sanctuaries; picnic areas and playfields; hiking, bridle, all-purpose and physical fitness trails; six golf courses; swimming and boating areas; stables; tobogganing, sledding, skating and cross-country skiing areas and four nature centers.

"Our aim is to preserve and enhance the natural environment," explains Mark Oesterle, superintendent of parks for the Cleveland Metroparks, who oversees some 150 full-time workers and approximately 200 seasonal employees.



Last year almost 400,000 golfers played at the six Metropark Golf Courses, including this one, Big Met.

Wanted: weeds

Weeds are left pretty much alone throughout most of the system. Some weeds, in fact, add to the necklace's glitter. For example, the July edition of *The Emerald Necklace*, the Metroparks' monthly newsletter, tells readers that "Joe-pye and common milkweed both unfold pale purple blossoms this week. Take time to smell a milkweed—a pleasant surprise!" and "Enjoy the summer woods as we search for wildflowers and weeds that bloom (this month)."

"We don't try to keep any of our grassy areas totally weed-free; we're not concerned with it," Oesterle reports. "We do some weed control, mostly around parking lot posts, road delineators and sign posts, and along bridle trails. String Trimmers have been such a big help. We use chemicals, like Roundup, only in areas where we need longer kill periods. About the only other chemicals we handle are in the swimming pools."

Oesterle explains that Metroparks uses Stihl string trimmers for the most part because "we have found them to be light and durable and easily used by inexperienced seasonal employees. We can drop off a couple of seasonal people, accompanied by a worker on a riding mower, and together they can clear a large area in a relatively short time. The mower cuts six-foot swaths and the String Trimmers trim around trees, picnic tables, buildings, signs, and so on."

Grassy areas are seeded

Carl Kovac is a freelance writer based in Cleveland.

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Circle No. 114 on Reader Inquiry Card

Picnic tables are anchored on crusher-run gravel pads to facilitate mowing the surrounding grass.

periodically with Park mix: one-third bluegrass, one-third red fescue and one-third perennial rye. "Some heavily-used places, like picnic areas, wear down faster than others. What we've been doing over the past five years is choose three to five of these areas at a time and go in with special crews who rototill the ground and seed it.

"We've also been building table pads in picnic areas," he continues. "We strip the topsoil, then use crusher-run gravel to build a mound six inches above the surrounding grade. The mound is rolled and picnic tables and a grill are anchored in place. The grass around the pad is then brought to the edge. The advantage of this is that mowers can move around the pads, close to the tables, saving a tremendous amount of time."

In addition to approximately 80 string trimmers, the Metroparks also use riding mowers, most of them Cushman models with six-foot front-mounted cutting decks, for fine cutting in picnic and other grassy areas. Ford tractors pull flail mowers over large fields. "Each reservation probably has 20 to 24 riding mowers plus a tractor," Oesterle says. "The tractors also are used for raking and other chores in the winter."

Busier than most

Maintenance personnel at the Metroparks golf courses also follow the "if-it-ain't-broke" philosophy. "We don't do anything different here than other courses do, except that we're probably busier," says Frank Blatnick, the system's superintendent of golf courses.

Last year, 389,607 players took on Big Met, Manakiki, Sleepy Hollow (all 18-hole courses); Little Met and Mastick Woods (each nine-hole); and Shawnee Hills (which has a par-27, nine-hole executive course, a regulation par-36 nine-hole course and a driving range). Interestingly, senior citizens accounted for 21.8 percent of total play at the Metroparks courses in 1985.

Construction of an additional nine holes at Shawnee Hills, at an estimated cost of about $100,000 per hole, was begun last fall. The project includes leveling hills and removing trees and brush. When completed in early 1988, Shawnee Hills will have an 18-hole, par-72 course approximately 6,316 yards long; the official length will be set by the Professional Golfers' Association (PGA). The 1,323-yard nine-hole executive course will remain unchanged.

"We keep the courses in as good shape as possible," says Blatnick. "We water fairways on the 18-hole courses, we fertilize the tees, fairways and greens on a regular basis, and we use chemicals to curb crabgrass and insects. We normally don't seed. But bent, the fescues and perennial ryegrasses are used when we have to." His crews use triplex and gang mowers to keep the courses trim.

Pre-emergence chemicals are used in the spring for crabgrass control; contact leaf herbicides are sprayed or applied with spreaders in the spring and fall; and fungicides are used as needed, Blatnick says. Insecticides to control white grubs and ataenius beetles also are used.

Overlapping species

In addition to grasses, weeds and a wide variety of shrubs and wildflowers, the Emerald Necklace also boasts more than 100 species of trees, tended by a small forestry crew headed by natural resource specialist Joan Pfingsten.

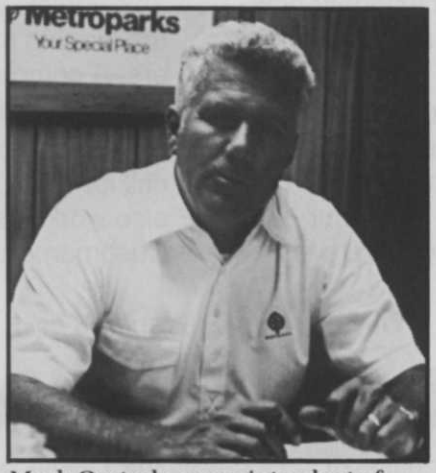
"Because of our geography and climate, we're really in an interesting position here," she says. "Many of the species overlap geographically. We have aboreal forest trees found in Canada, and we have flood plain forests in addition to beech, maple and oak trees native to this area."

Pfingsten says that "we do an awful lot of planting in the spring and fall. We have eight nurseries—well, actually 7½. The deer are working on one harder than I am.

"We employ selective release," she reports. "We feature certain trees along certain trails, for example, depending on the season. This way, we keep the park roads looking attractive. After all, it's the first thing people see; it's a first impression."

All of the people who keep the Emerald Necklace shimmering are apparently doing the right things. Last year, more than 21.5 million visitors took the opportunity to bask in the radiance of the necklace's gems. **WT&T**

Frank Blatnick, superintendent of Cleveland Metroparks' six golf courses.



Mark Oesterle, superintendent of the Cleveland Metroparks System.

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Circle No. 109 on Reader Inquiry Card

CLEANING MISS LIBERTY'S HOUSE

Landscape restoration on Liberty and Ellis islands in New York Harbor was not an easy assignment last year. But the National Park Service was up to the task.

by Robert L. Tracinski

When the U.S. government closed down Ellis Island on November 29, 1954, personnel walked out of their offices and away from the immigration center that had processed 16 million immigrants in 62 years.

They didn't take so much as a file folder with them.

They just walked away.

So when the National Park Service took over Ellis Island in 1985, its staff found paper in the typewriters and calendars left open to November 29.

And they found an overgrown jungle in what used to be the parks and gardens of Ellis Island. A jungle that had to be cleaned up—virtually one branch at a time—over a period of nine months, in time for the historic Statue of Liberty rededication ceremonies over the July 4th weekend.

"We had to do everything by hand because we didn't want to risk destroying any artifacts that may have been hidden by all the vegetation," says Chuck Pellicane, chief of maintenance for Liberty and Ellis Islands. "We had a forest in the mall area behind the administration buildings on the Island—everything from pear trees to Virginia creeper to poison ivy.

"It was so dense that you couldn't walk through there. We discovered a softball field, park benches, concrete park lights and a maze of sidewalks."

The job was so massive that a full-time crew of 10 Park Service employees and dozens of part-time volunteers worked from October to July.

"If I didn't have to worry about the artifacts, I could have done the whole thing in one week with one bulldozer," Pellicane says.

The Park Service crews used chain saws, stump grinders and wood chippers to turn the five-acre forest into a presentable area. "We cut down literally hundreds of trees—all by hand—so we could save the healthy vegetation," Pellicane notes.

Once the wood chip mulch nourishes the soil, the Park Service will plant grass in order to create an area on the Island where groups can hold ethnic festivals. In fact, the Park Service plans to call it the Festival Lawn.

Part of the effort to restore the Statue of Liberty included a new landscaping design to focus attention on the Statue. A line of trees along either side of the entrance to the Statue draws the eye directly to Miss Liberty. A ring of trees around the base of the Statue blocks out the New York City skyline as people approach the entrance. New grass, trees, shrubs, plants and groundcover were installed as part of the new design, including 5½ acres of sod, nearly 200 trees, 440 shrubs, 55,075 ivy plants as groundcover and 5,150 narcissus bulbs.

Chuck Pellicane, chief of maintenance at Liberty and Ellis Islands, plans to set up a preventative maintenance schedule.

All that new greenery means that the Park Service uses a lot of chain saws for pruning and leaf rakes to pick up fallen leaves from 200 trees.

Kentucky bluegrass was planted on Liberty Island because of its ability to grow well in the shade. Pellicane said sod was laid rather than planting grass seed because "there wasn't enough time to plant seed on Liberty Island. The contractors were laying sod on Liberty Island until midnight on the third of July."

Contractors remain on Liberty Island finishing up the last details on the restoration project. Once they leave, Pellicane says he plans to start a motor pool division with a shop set up to service the equipment.

"We want to set up a good preventive maintenance schedule," he says.

Pellicane joined the National Park Service in 1974 as a maintenance foreman at Gateway National Recreation Area, which encompasses 26,000 acres of land and water in Brooklyn, Queens and Staten Island, N.Y. and Sandy Hook, N.J.

The maintenance crew for Liberty and Ellis Islands consists of 40 people in two divisions: 14 in Buildings and Utilities and 26 in Grounds.

The Grounds Division is responsible for picking up and burning garbage, cutting and watering the grass, and cleaning inside the buildings and the Statue. Four people in the Grounds Division spend all day, every day, from 8 a.m. to 4 p.m., seven days a week, from April to October, cutting the grass on Liberty Island. One maintenance worker spends all day cutting the grass on Ellis Island.

Each day, the staff arrives on Liberty Island on a 7:30 a.m. boat from Battery Park in lower Manhattan. They start their day by picking up the garbage left by the crowds.

"There's so much garbage here now that everyone has to spend time picking it up. Even the mowing operators are out there with a 'pickstick,' because you have to clear the grass before it's safe to mow it," Pellicane notes.

At the end of the day, the mowing crew shuts down at about 4 p.m., 30 minutes before the end of the work day, to hose down the equipment,

Robert L. Tracinski is consumer information specialist for John Deere & Company

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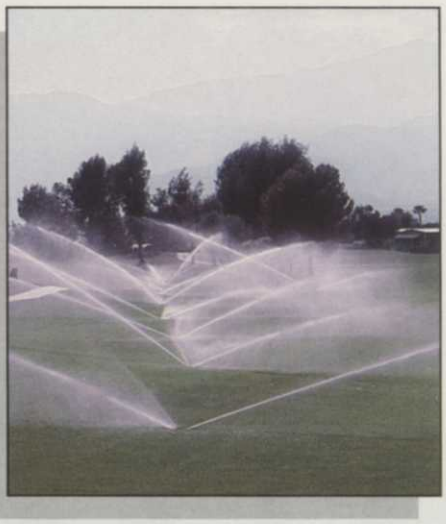

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Circle No. 180 on Reader Inquiry Card

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But pendimethalin controls more than just crabgrass and goosegrass. One low rate also prevents other tough grassy weeds including foxtail, fall panicum, barnyardgrass and *Poa*

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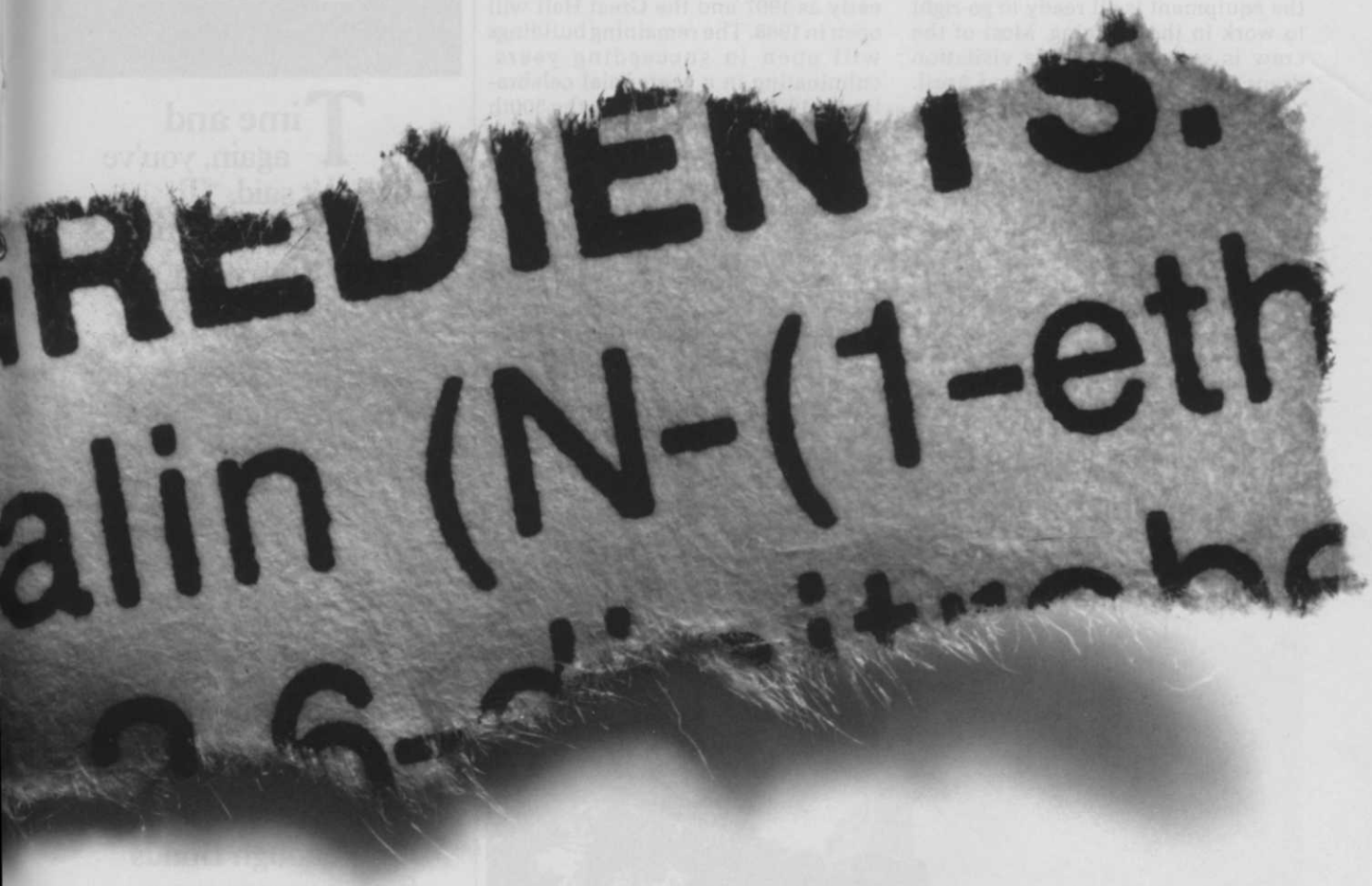

word for it.

annua. Hard-to-control broadleaf species like oxalis and spurge are also eliminated with the same rate.

What's more, pendimethalin breaks down into the environment. And it doesn't move laterally through the soil. Which means it won't seep into bodies of water or stop vegetation you don't want it to stop. Plus, pendimethalin-based herbicides don't have an offensive odor like some products.

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Circle No. 101 on Reader Inquiry Card

Part of the effort to restore the Statue of Liberty included a new landscaping design to focus attention on the Statue.

grease it, maintain it and refuel it, so the equipment is all ready to go right to work in the morning. Most of the crew is seasonal because visitation drops off between October and April.

During the mowing season, it's a seven-day-a-week operation, with weekends the busiest days because of largest crowds. (About a month after the reopening ceremony, crowds were peaking at more than 20,000 people each day.)

And when Ellis Island reopens to the public in 1992, the Park Service estimates there will be even bigger crowds with more than 30,000 people each day visiting the two islands.

The Park Service plans to restore and open to the public 25 of the 30 buildings on Ellis Island. The Immigration Center will be turned into a museum tracing the history of immigration to this country.

The Festival Lawn will open as early as 1987 and the Great Hall will open in 1988. The remaining buildings will open in succeeding years, culminating in a centennial celebration in 1992, coinciding with the 500th anniversary of Columbus' discovery of America.

Chain saws and all the other lawn care and landscaping equipment were provided by John Deere, which has signed an agreement to be the official supplier to Liberty and Ellis Islands for the next 10 years. The equipment list includes compact utility tractors, lawn and garden tractors, walk-behind mowers, weed trimmers, tillers, chain saws, portable generators, welders, back pack blowers and high-pressure washers. Also provided is a variety of attachments: loader, backhoe, snow blower, dumpcart and grass collection systems. **WT&T**

Larry Cooper, a maintenance mechanic's assistant at the Statue of Liberty, uses a lawn tractor to cut the 5½ acres of new sod on Liberty Island.

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Circle No. 136 on Reader Inquiry Card

Shooting par for maintenance equipment

As in golf, attention to detail means success in the maintenance game.

Today's golf courses are constantly placing greater demands on the superintendent trying to maintain top playing quality. To meet these demands, proper administration, programming, sufficient budgets, manpower and responsibility are necessary in addition to modern equipment.

A PGA report appearing in the newsletter of the Golf Course Superintendents of New England suggests a certain variety and quantity of equipment is necessary to provide adequate care to the majority of 18-hole courses, depending on the degree of maintenance (see table).

The report broke the equipment into three sections: greens and tees; fairways and roughs; and general equipment. Under each category, a list of equipment and quantity was provided. Lists for the three categories included mowers, aerators, thatchers, fertilizer spreaders and more.

Other recommendations

The report also addressed a number of other equipment categories. For miscellaneous hand equipment, the report recommended getting axes, burners, crow bars, a duster, cup cutter, wheelbarrow, ladder, sod edgers, sod lifters, shovels, rakes, funnels, a spade, picks, forks, jacks, pruners, tree saws, animal traps, pumps, gas cans, scales, pullers, hoses, bamboo poles, soil testers and a soil probe.

The report suggests various repair tools should be handy for work on all power equipment, plumbing drains, electrical equipment, sewers, roadways, cement and concrete, water systems, painting and wood working repairs, etc.

The shop should also be equipped with tools, the report stressed. Such tools as a lapping machine, air compressor, steam cleaner, table saw, grinders, vises and work benches are recommended.

Irrigation equipment is of course necessary, with each course determining the pumping station and number of heads necessary.

The newsletter also touched on a few necessities for a maintenance building. The building should have a superintendent's office, storage rooms for herbicides, fungicides and fertilizer, and sufficient storage space for all equipment. An additional storage building, the report states, is essential for storing and mixing topdressing material, which should be kept dry. The report recommends storing at least a two-year supply at all times.

Maintenance staffing

For an average 18-hole course in the Northeast, the report recommends a year-round superintendent and assistant superintendent, a year-round mechanic and two year-round laborers.

Three laborers should be hired at the outset of the outside maintenance program, the report suggests, and should be carried through the end of the fall maintenance program. In addition, three laborers should be hired as summer help.

Proper training of all employees is necessary for proper equipment operation and maintenance program implementation. **WT&T**

GREENS AND TEES

6 to 8 putting green mowers	1 power spiker
2 power aerators	1 power sprayer (fungicides)
1 vertical mower	1 proportioner
1 power drag mat	2 rotary fertilizer spreaders
1 power top dresser	2 triplex mowers
1 power thatcher	

FAIRWAYS AND ROUGHS

2 seven-gang hydraulic tractors and mowers

1 fairway aerator	1 power sprayer (herbicides)
1 fairway thatcher	1 rotary fertilizer spreader
1 fairway sweeper	1 five-gang mower (roughs)
	1 three-gang roller

GENERAL EQUIPMENT

1 or 2 dump body golf tractors	1 power stump cutter
2 general construction PTO tractors	1 power soil shredder
1 jeep, pickup truck, etc.	1 power hand sweeper
1 dump truck (5 ton min.)	2 power leaf blowers
1 snow plow	1 water ballast roller
1 front-end loader and backhoe	6 rotary trimmer mowers
1 power sod cutter	3 hand trimmer mowers
1 power saw	2 general purpose power and reel mowers
	2 or 3 gas powered runabouts

No, it's not an army maneuver, it's a sampling of the maintenance equipment and staff required for daily upkeep of five golf courses at The Resort Hotels, World of Palm-Aire, in Pompano Beach, Florida. Some 14 tractors, 8 trucks and 50 mowers of various types are required to keep the resort's 600-700 acres playable. Palm-Aire's superintendant of golf courses, Harvey Linderman (in center of photo) surveys his $500,000 inventory.

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Circle No. 121 on Reader Inquiry Card

PROBLEM SOLVERS

by **Balakrishna Rao,** Ph.D.

Controlling weeds along a fence

Problem: *Can you recommend some chemicals to control grassy weeds along a fence? We have a mowing service and these areas present a serious problem. In some areas, we do not have any greens at some time, but they may germinate at other times of the year. (New York)*

Solution: Several products on the market can be used along fences to manage vegetation. For the problem you are describing, use of dichlobenil should provide adequate control of grass plants. Be careful while applying this material around shallow-rooted trees or shrubs. This is a nonselective herbicide which is root-absorbed and can be applied to soil or grass to achieve immediate kill and long-lasting effects.

Dichlobenil forms a barrier in the soil that affects germinating seeds, shallow-rooted plants and emerging growth of perennial weeds. It can move in the soil ½ to 3 in. deep depending upon the soil type. Read and follow label specifications.

Ridding maples of conks

Problem: *What can be done to get rid of conks on maple trees at the base? (Chicago)*

Solution: The conks you are referring to are the fruiting bodies of *Ganoderma lucidum*, the causal agent of Ganoderma rot. These decay-causing fungi establish on weakened and stressed plants. They cause rapid decline and death of affected trees.

Not much can be done when the conks begin to appear. These fungi establish on wounded sites and cause decay and eventually produce these sporulating fruiting bodies.

Bark trace and remove the fungal structures. Let the area air-dry. Then, if the decay area is small, apply fungicide to avert fungal growth and use some latex base paint to cover the exposed area. Large cavities can be filled with proper cavity-filling compounds. Fertilize and water as needed to help improve plant vitality.

Equipment cleaning procedure

Problem: *What is the proper procedure for cleaning spray equipment after using non-selective herbicides such as Roundup? (Pennsylvania)*

Solution: The herbicide handbook of the Weed Science of America (Third Edition, 1974) suggests a thorough flushing with several changes of clean water. This should be done soon after herbicide use. It is important to clean the tank, pump and hoses.

If this cleaning is not sufficient, for further cleaning fill the spray tank with ½ cup of household ammonia per gallon of water and spray the area through the delivery system including the gun, hose and nozzle. Let the solution stand in the tank overnight and then empty the tank. Rinse the tank twice, allowing the clean solution to circulate through the entire spray system.

Falling skeletonizer larvae

Problem: *We are seeing a large number of oak leaf skeletonizer larvae falling down from trees. Clients are upset. We have used Sevin in the past around June and again in August every year. Can we spray in late September-October, and will there be any benefit? (Ohio)*

Solution: The product and timing should have controlled this problem. It is possible that your treatment took care of those pests actively feeding at the time of spraying. The properties might have been reinfested by the oak leaf skeletonizer from nearby untreated properties or adjacent wooded areas.

Although difficult, to be effective it is important to practice a community-wide management program for oak leaf skeletonizer problems.

As far as spraying in late September, this would not be much help in management because soon they will be pupating and there is not enough time for another generation. If anything, spray may affect some larvae which may be still feeding. Since the damage is seen on mature leaves later in the season and these leaves will be falling off in a few weeks, there is no need for any treatment now. However, make a note of these properties and sign them up for next year's management program.

Protecting from erosion

Problem: *How do you establish a temporary (six months to one year) ground cover under a shaded and sloped wooded lot? What can we use? We want to protect the ground from soil erosion. In the future we would like to use this area for landscaping. (Virginia)*

Solution: For a quick and temporary ground cover establishment, use either tall fescue or annual ryegrass. Tall fescue will be more shade tolerant. Non-certified seeds of tall fescue can also be used. Prior to landscaping, use Roundup to kill these and then go ahead with landscaping.

Balakrishna Rao is Director of Lawn Care Technical Resources for The Davey Tree Co., Kent, Ohio.

Questions should be mailed to Problem Solvers, Weeds Trees & Turf, 7500 Old Oak Boulevard, Cleveland, OH 44130. Please allow 2-3 months for an answer to appear in the magazine.

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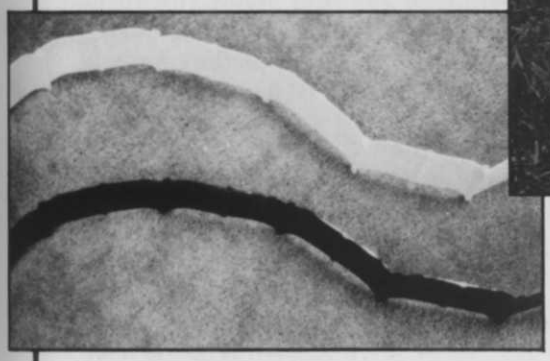

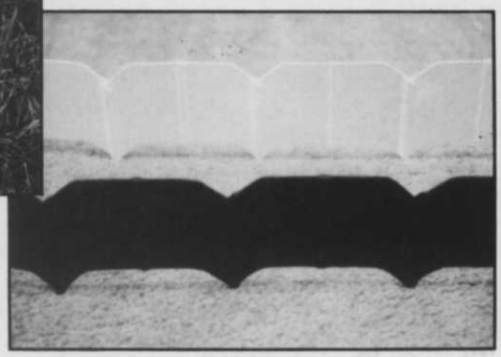

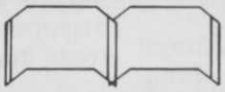

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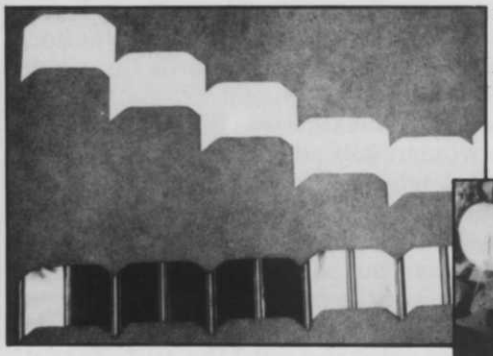

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The new "Edge Lock™" interlocking lawn edging system, is unlike any lawn edging you've ever used before. We've eliminated the problems associated with installing those "other" edgings. For example, no more long strips to fumble with. Each "Edge Lock™" section is only 6½" wide x 4¾" tall, and, each one locks inside the other, giving you the freedom to create any length you desire. And once it's locked in, it won't pull apart. Not to mention that any number of feet, or any configuration, can be easily installed by one person! There are no clumsy stakes to struggle with, and no time consuming trenches to dig, Edge Lock™ is self trenching and self supporting too! And since landscaping isn't just "straight lines", Edge Lock™ edging goes around corners without a fight. You can form a complete 18" circle without bending or forcing because each Edge Lock™ section swivels inside the other so it won't hamper your creativity. A 20' section of interlocking pieces comes in a small box 10½" x 7" x 5¼" that weighs 6 lbs., making it possible to transport thousands of feet in a small pickup truck! Edge Lock™ doesn't look like those "other" edgings either, it has a distinctive new beveled appearance, in fact it's so attractive when installed, you'll want to incorporate it as an integral part of your overall design! Want more? How about competitive pricing, colors like black, ivory and green, taller pieces for softer soil, & high impact plastic construction. But then we could go on and on about the benefits of our new edging. If you would like to know more about Edge Lock™ the revolutionary new interlocking lawn edging system, call or write us for more information, and look for more innovations from the company that has been engineering quality products for over 35 years. (Patent pending).

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Distributors Wanted

Circle No. 120 on Reader Inquiry Card

LETTERS

Women in turf

To the editors:

Thank you so much for your article about Virgie Ross. She has been my hero since I met her at the Iowa State Turf Conference two years ago. I am responsible for 60 acres of turf and ornamentals at an Iowa technical college. After two years of sexist jokes, unintentional snubs and smashed fingers, I was ready to go back to being a cocktail waitress. Virgie, right in the middle of the conference, convinced me I would be accepted, and I was.

The rewards of a turf career far outweigh the "barrier breaking" I have had to do. Now, entering my fifth season should qualify me for your "turf lady list." I would not trade my big Jake or my 72-inch Toro for any other job I have considered.

Jane Ferch
Hawkeye Institute of Technology
Waterloo, Iowa

To the editors:

I found the "It's No Joke" article by Heide Aungst all too close to home. I see many of the same problems faced by women superintendents only amplified in the lawn care industry.

We have a very hard time holding on to female specialists. I know that the hours are long and hard, but I feel the poor attitude of most customers has a more dramatic effect.

The female employees that I have been associated with in both the lawn and ornamental fields have usually been far superior technically than most of the male employees, but usually there is little respect for them by homeowners.

You constantly get asked, "Why would a woman want to do that job?" Obviously, these narrow-minded individuals have never experienced the true enjoyment and rewards of the green industry.

Gary Curtis
Chemlawn
Chesterfield, Mo.

To the editors:

I just wanted to write and tell you how much I enjoyed your feature on women in the December issue of WEEDS TREES & TURF. Being a woman personally involved in the turfgrass field, I was delighted to see this feature. I grew up on a golf course where my father was the superintendent and spent every summer I can remember working on a golf course crew. I received my B.S. in turf management from Mississippi State University and am currently finishing work on my M.S., in turf, at MSU. I plan to begin work on my Ph.D. at another university in the fall.

I know how frustrating it can be to be a woman in this field, but I also know it's very rewarding. I'm so glad that you made the effort to spotlight women in the turfgass industry. I've often been apprehensive about my own career goals, but your feature, and particularly your final note in the "Outlook" section, has given me new incentive and made me even more determined to achieve those goals. Thank you so much for supporting all the women in our industry.

Melodie L. Kemp
Mississippi State University
Mississippi State, Miss.

To the editors:

I was excited to see a feature article on women involved in grounds care professionally in the December issue. I enjoyed reading about the three women as golf course superintendents. I have experienced many of the same frustrations they have in my career development. But I must express one concern: why was it necessary to use a model for the cover photo? Why weren't the three women discussed in the article used on the cover? Are male models usually used on the cover? I was a little disappointed in this dichotomy from a professional trade magazine.

Patricia Linton
Servicemaster Industries Inc.
Santa Clara, Calif.

To the editors:

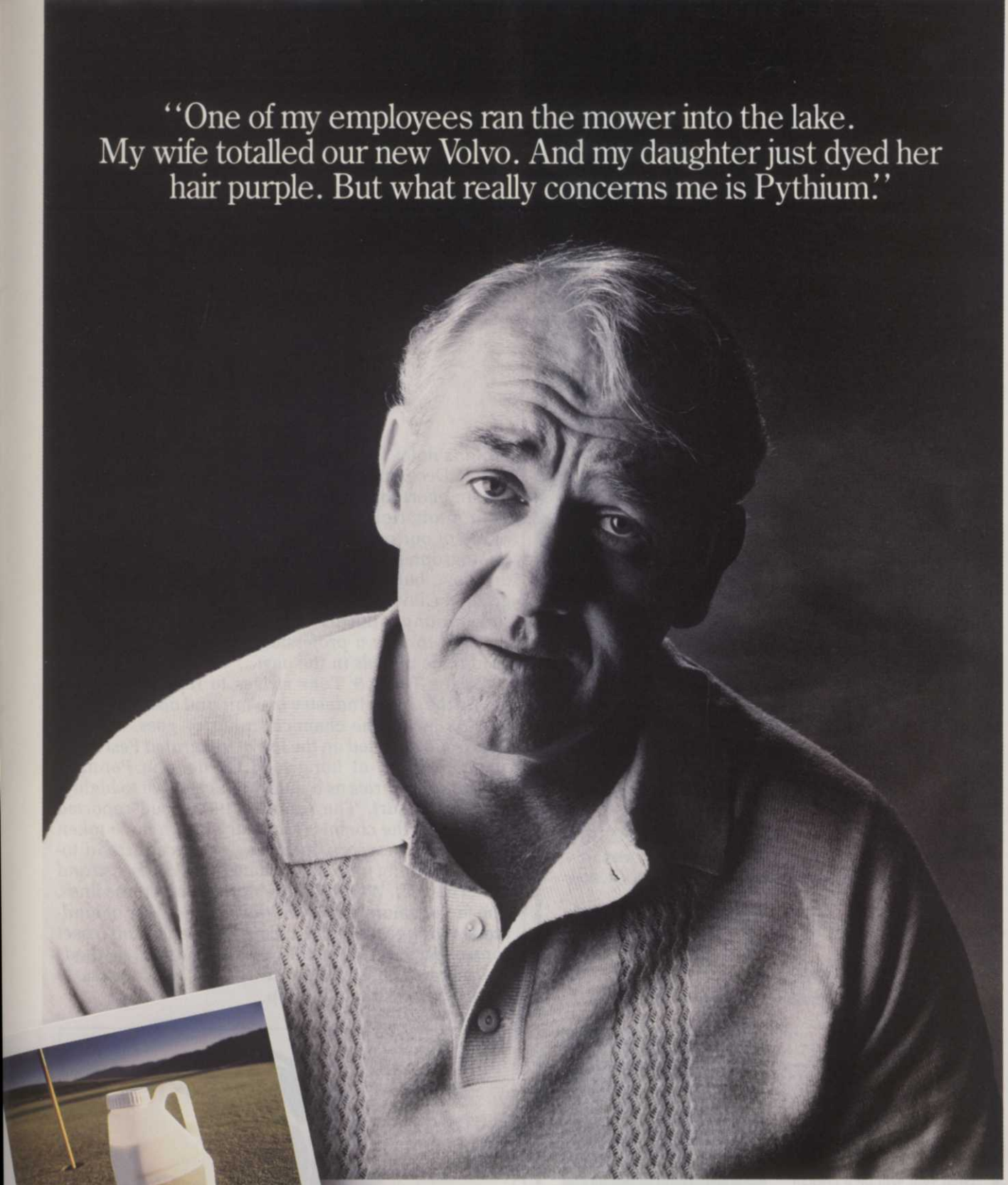
I am not normally a writer of letters to the editor, but your magazine has irritated me to the point where I can't restrain pen from paper.

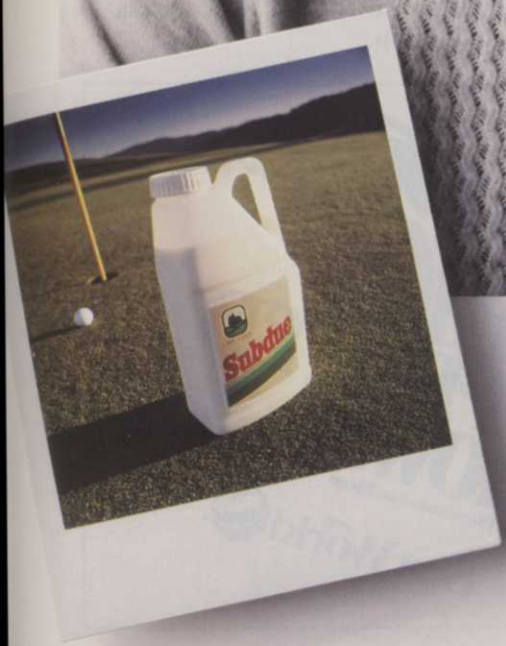
The most recent annoyance was your handling of the article on women golf course superintendents. Great article, but why did you choose a model to represent a super rather than put a "real" one on the cover? This seems to be the height of hypocracy—you state that women can do the work, yet none was worthy of appearing on the cover? With all respect to Ms. Aungst, it appears that your publication is still written by men for men, and until the attitude that women are merely decorations for magazine covers and advertisements (this has improved) changes, I'm afraid that equity in the work place will be far in the future.

Another irritation to me has been what I consider a long-standing anti-environmental slant in your publication. One small example was a recent article on a public garden area in the South (I forget which one) in which the article states that a "useless swamp" was turned into a beautiful garden area. This is a loaded statement which is typical of a narrow-minded attitude that sees nature as being valuable after it has been tamed, manipulated or otherwise become subservient to human control. How about more articles in which natural conditions are accepted and utilized rather than destroyed?

A related concern is the constant reinforcement of the chemical industry's philosophy that they are the sole authority on what is harmful or good for the environment. Perhaps the chemical industries overall record is good, but when errors are made, the

"One of my employees ran the mower into the lake. My wife totalled our new Volvo. And my daughter just dyed her hair purple. But what really concerns me is Pythium."





There's one sure way to avoid worrying about Pythium. Use Subdue® fungicide. Subdue stops Pythium on contact. And once absorbed by grass roots, Subdue protects your turf against further attack for up to three weeks. So don't let Pythium get you down. Get Subdue. Because you've got other things to worry about. CIBA–GEIGY

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Circle No. 168 on Reader Inquiry Card

consequences are often serious or disastrous. The citizen has the right to decide what gets applied in the environment, not the company which is operating primarily out of profit motive. I think you do a disservice by not providing a balanced view of this situation.

I offer these comments in a constructive manner. I think your publication has the ability to influence a large number of people in the industry. Is there any hope for change?

Dennis Easley
Carleton College
Northfield, Minn.

Editor's note: The choice to use a model on the cover of our December issue was strictly one of logistics, not an effort to "juice up" the cover. WEEDS TREES & TURF's editorial offices are based in Cleveland, Ohio. Many of our cover shots are done by a professional photographer based in Cleveland. We searched high and low, but could not find a woman super in the greater Cleveland area. The editorial staff, which shoots many of the inside photographs, does not have the skill to take a professional cover shot. We have used male models in the past.

WEEDS TREES & TURF strives to report the issues facing the Green Industry in a fair and accurate manner. As far as the chemical industry goes, the Oct. 1986 issue reported on the use of Integrated Pest Management (IPM) at Longwood Gardens in Pennsylvania and prairies as a natural alternative to highly-manicured turf. The January 1987 issue reported changes in the chemical industry which have taken place over the years, including the recent trend toward searching for biological methods of disease and insect control. We plan more stories along these lines. The facts remain, however, that the majority of landscape managers use chemicals for disease and insect control. Experts tell us that effective natural methods are more than 25 years away. But we promise to report them as they develop.

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10,355	BODY FASHIONS/INTIMATE APPAREL
3,519	CANDY INDUSTRY
10,295	CANDY MARKETER
20,406	CONCRETE
100,414	DENTAL MANAGEMENT
6,372	DERMATOLOGY TIMES
12,608	DRUG & COSMETIC INDUSTRY
33,366	DVM NEWSMAGAZINE
22,571	FLOORING
67,708	FOOD & DRUG PACKAGING
59,625	FOOD MANAGEMENT
18,624	HEARING INSTRUMENTS
42,543	HOTEL & MOTEL MANAGEMENT

Circulation	Magazine
13,697	HOUSEWARES
12,841	LAWN CARE INDUSTRY
15,496	LP/GAS
15,778	MEAT PROCESSING
13,115	NEUROLOGY
14,607	OPHTHALMOLOGY TIMES
23,501	OPTOMETRY TIMES
12,880	PAPERBOARD PACKAGING
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14,902	PEST CONTROL
14,001	PETS SUPPLIES MARKETING
20,828	PIT & QUARRY
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The self-sealing guard is easy to install. Each protector is six by nine inches and can wrap trunks three inches in diameter. Two protectors

can be connected end-to-end for larger trees.

Trimmer Guard is sold wholesale in cartons of 24 for $22 plus $2 shipping.

Circle No. 190 on Reader Inquiry Card

Mower comfortable to its operators

Middlesworth Engineering and Manufacturing has introduced the Model C54R commercial riding rotary lawn mower, an out-front with a 54-

inch cut. It features an adjusting lever with cutting heights from one to four inches.

The C54R has hydrostatic transmissions with variable ground speeds to six mph and true zero-turning radius. It uses a 16 hp Kohler engine.

The mower is designed to provide a very comfortable operating position because the operator does not straddle the engine or framework. A convenient handle assists the operator in mounting and dismounting.

Circle No. 191 on Reader Inquiry Card

Front-mount designed for commercial use

Kubota Tractor recently introduced an entry into the commercial turf maintenance market, the F2000 front-mount mower.

The F2000 is equipped with a 20 hp liquid-cooled diesel engine, four-wheel drive, differential lock, rear-wheel steering, hydrostatic transmission and power steering.

The machine, its manufacturer

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Trouble-Free Turf Maintenance Year Round!

The most advanced spraying devices in turf care that work season after season with trouble free start-ups.

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Scag offers a full line of money-saving, low-maintenance commercial riders and walkers tough enough to handle all your jobs. Not only do Scag mowers cost up to 25% less than comparable models, their easy, self-service design allows for on-site tire changes, replacement of spindle bearings and other repairs at a fraction of the usual time and expense.

What's more, when you save with Scag you don't sacrifice performance because Scag's machines cut up to 30% faster than competitive brands. And, Scag mowers are built from the highest quality parts and materials, like oversize cast iron pulleys, heavy-duty spindle and rugged pneumatic caster wheels. So, they'll outlast as well as outperform ordinary mowers.

Boost your bottom line with Scag's heavy-duty riders and walkers from 8- to 18-HP models with 32 to 61 inch cutting widths. See for yourself why no mower is easier to use than Scag.

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says, has smoother operation on terrain too steep or tractive conditions too slick for conventional two-wheel drive mowers. The front mount ensures good visibility, and travels up to 9½ mph.

A 60-inch deck is standard, with cutting heights from 1½ to four inches. A 72-inch deck is optional.

Circle No. 192 on Reader Inquiry Card

Sulphate of potash available in bulk, bags

Sulphate of potash in bags or bulk is now available from Tyler Enterprises, Elwood, Ill. This potash is of consis-

tently high quality with .14 percent insolubles.

Tyler currently supplies turf market professionals with a diverse selection of custom formulated fertilizers and chemical control products, including its proprietary line of Greensward Custom Formulated Fertilizers.

Circle No. 193 on Reader Inquiry Card

Harness eases burden of transporting barrels

A harness designed to lift barrels from the end to transport them has been designed by Free Enterprise Systems. The Bold Eagle Barrel Harness can lift any 55-gal. or smaller drum with a lip around the end, and can be lifted vertically and suspended with a chain hook or other hook.

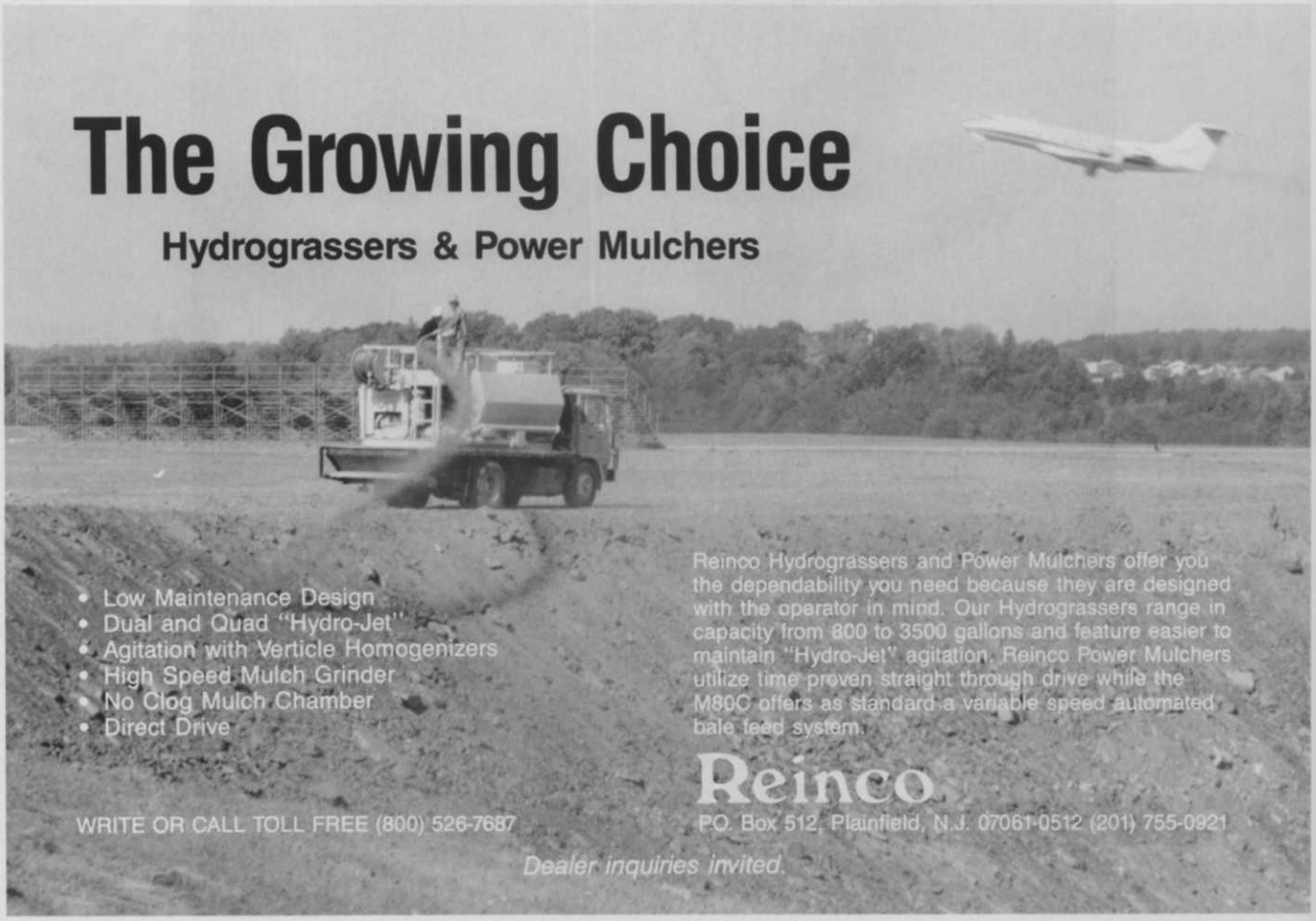
Weighing two pounds, it has a lifting capacity of 840 lbs.

Circle No. 194 on Reader Inquiry Card

Liquid chemical spreader pump ground-driven

The WS-490 Greens Wheelie, manufactured by Wheel Spray, is a liquid chemical spreader with a unique

ground-driven pumping system. This new model features larger, easy-to-push pneumatic-type rubber tires and



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a thick-wall 10-gallon tank with a wide mouth lid.

The Wheelie is used to apply liquid fertilizers, herbicides, fungicides, insecticides and growth regulators. The twin wheel pumps spray a fan of solution six feet wide at the rate of 1,000 sq. ft. per gallon.

The operator controls shut-off valves from the handle grips whenever spray nozzles are used independently.

Circle No. 195 on Reader Inquiry Card

Tarp Machine reduces labor on fields

The new Tarp Machine reduces time and labor costs in rolling and unrolling fabrics on athletic fields by making the job quick and easy.

The machine fits on the back of any three-point hitch tractor with a power take-off. It is best used with a four-wheel drive tractor, making it safe to use on turf.

The Tarp Machine will work with any size fabric or drum. It is ideal to use with tarps or geotextiles used on athletic fields, but can also be used for roadsides, railroad bed surfaces and ice rinks.

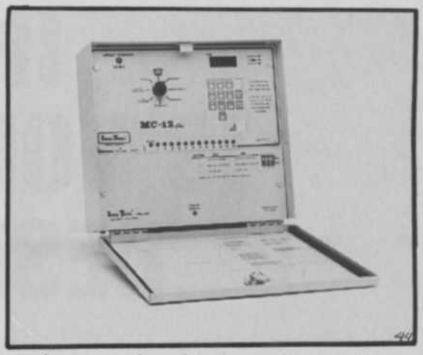
Circle No. 196 on Reader Inquiry Card

Irrigation controller series aids in water budgeting

The Irri-Trol Company introduced its new MC-Plus series irrigation controllers at the Southern California Turfgrass Show.

The programmable series provides more user control, and is available in four-, six-, eight-, 12-, 18- and 24-station models.

The computer can run four programs concurrently, and has an alarm indicating incomplete programs. The controller displays the time at which each watering cycle ends, with a programmable watering calendar of up to



16 days. It also displays the total watering time for each cycle.

The controller comes with single-station timed operation to turn on a station manually for its programmed watering time without advancing to the next programmed station. The system is also remote control ready.

Circle No. 197 on Reader Inquiry Card

Improved bale chopper has stronger engine

Gossen Industries' bale chopper now uses an 11 hp gasoline engine for increased power when handling heavy materials. A hopper cover has been added, and a single-level grate control adjusts through multiple locking posi-

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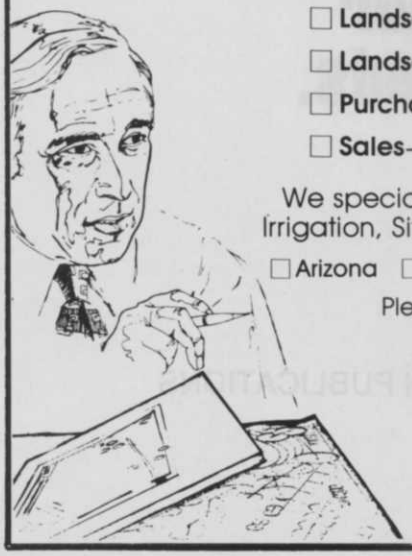

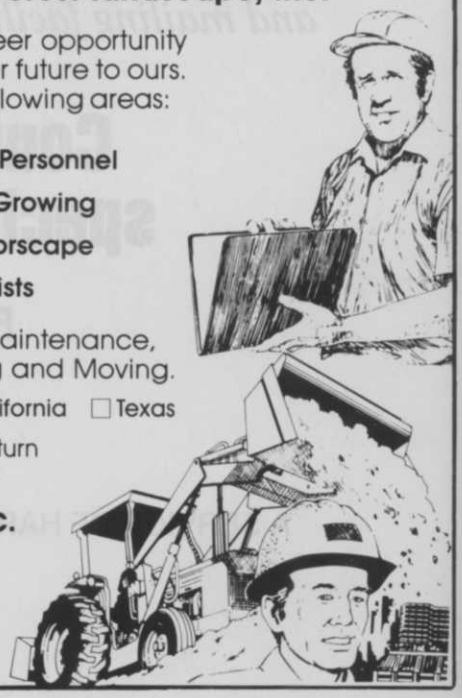

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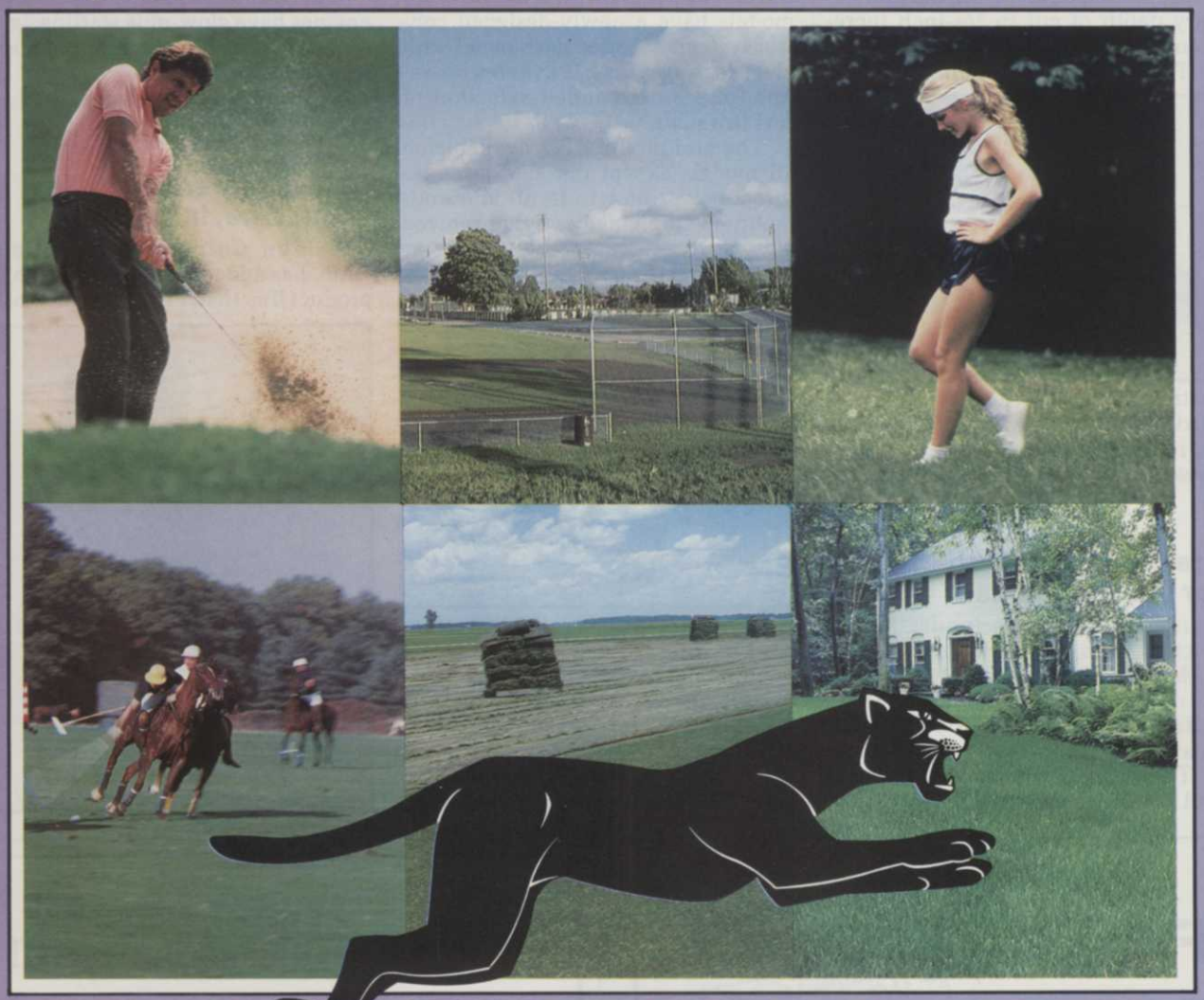
Excellent Overall Performance



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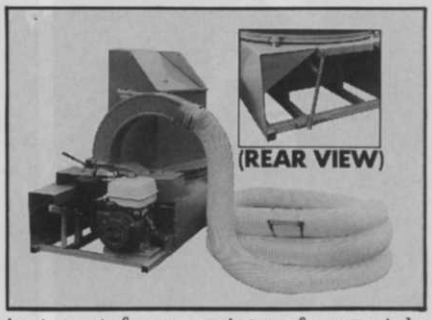
tions, raising or lowering the grate to vary depth of cut in 5/16-inch increments.

The lever allows immediate ad-



justment for a variety of materials during operation with no tools required.

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Tractor series perfect for year-round use

Four new 200 series (under 30 hp) tractors from Case IH, Racine Wis., with PTO horsepowers of 15.2 to 27 are designed to help the turf-care specialist perform better in year-round estate and general grounds keeping.

The series includes the 235, 245 and 255, improved versions of the 234, 244 and 254, plus a new model 275. All models have a newly-designed control system, a lighted dash panel with electric gauges for late evening operation, and an expanded selection of turf tire sizes.

The mid-mount PTO, available on all models except the 235, provides direct power flow to front- and mid-mounted implements. Synchronized

transmission with live PTO is standard on the 275 and optional on all other models except the 235.

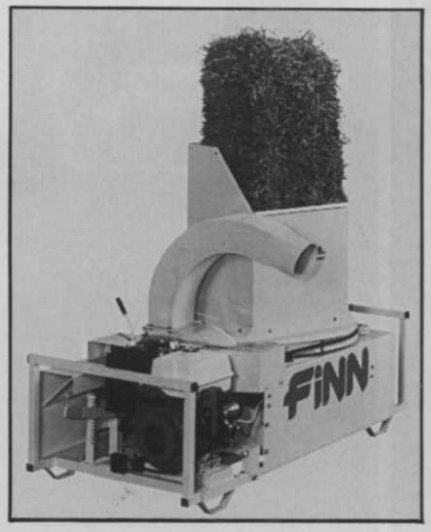
All 200 series tractors feature foldable ROPS for operator safety. Attachments include cultivators; side-, rear- and front-mounted mowers; snow throwers; blades and loaders.

The three-cylinder, liquid-cooled engines have glow-plug starting, ignition-key shut-off and maintenance-free batteries.

Circle No. 199 on Reader Inquiry Card

Bale chopper eliminates some time, labor costs

The Finn Corporation, Fairfield, Ohio, has added a bale chopper to its product line that, Finn says, increases



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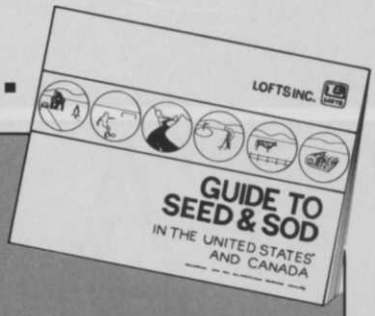

LOFTS TURF GUIDE

Lofts' *Guide to Seed and Sod in the U.S. and Canada* is available free of charge on request. The *Guide* is a complete reference for turf grasses, with comprehensive information on use, adaptation, planting dates and rates. This latest edition also includes a section on ornamental grasses and their application.

For your free copy contact Marie Pompei, Research Department, Lofts Inc., Box 146, Bound Brook, NJ 08805, (201) 560-1590.

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A GREAT TRAILER for TURF MANAGEMENT!

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A FUNGICIDE HAS TO BE SPECIAL TO BE TREATED LIKE THIS.

There are more superintendents on more courses treating more acres with Daconil 2787® fungicide than with any other turf fungicide.

In fact, nearly two-thirds of all U.S. golf courses are now being treated with regularly scheduled applications of Daconil 2787.

Because Daconil 2787 is the only fungicide that has a proven record of delivering consistent, first-rate control of 12 major turfgrass diseases. Including such tough ones as Helminthosporium melting out, benomyl-resistant dollar spot and large brown patch.

What's more, there has never been a single documented case of resistance in over 15 years of continuous use. Even on courses where Daconil 2787 was applied at weekly intervals for many seasons. Convincing proof that you don't have to alternate Daconil 2787 to avoid developing resistance.

And when it comes to cost per 1000 sq. ft., a single application of Daconil 2787 Flowable Fungicide is more economical than most other fungicides.

Plus you never have to add a costly spreader/sticker to Daconil 2787. It's already built into the formulation to assure full and even plant coverage for maximum disease prevention.

So this season, be one of the thousands of superintendents who made the right choice. Make your fungicide Daconil 2787 on tees, greens and fairways.

Fermenta Plant Protection Company, 7528 Auburn Road, P.O. Box 348, Painesville, Ohio 44077.

FERMENTA™ PLANT PROTECTION

Always follow label directions carefully when using turf chemicals.

Circle No. 128 on Reader Inquiry Card

profits by eliminating the time and cost of hand mulching.

The unit shreds and blows mulching material quickly and with a higher quality cover, allowing for faster more uniform growth. The included extension hose is for difficult-to-reach areas.

Mulching applications include newly-seeded lawns, bedding plants, around trees and shrubbery, and agricultural applications such as berry beds. Optional models and attachments are available.

Circle No. 200 on Reader Inquiry Card

Asphalt paver perfect for landscape market

An asphalt paver from Salsco, Inc. is perfect for the landscape/golf course industry. It will pave walks, bike paths, guardrail aprons, highway shoulders, utility trenches, carports, park paths and golf cart paths.

According to its manufacturer, the Sidewalker increases production by 60 percent and decreases manual labor by 60 percent.

The Sidewalker paves swaths from 36 to 72 inches at 50 feet per minute. It has a free-floating screed with adjust-

ments to control asphalt thickness and compensate for variations in ground contour.

Circle No. 201 on Reader Inquiry Card

Wooden equipment has a natural durability

Modular wooden playground equipment from Creative Playgrounds, Ltd., Sun Prairie, Wis., is constructed of durable 4x6- and 6x6-inch pressure-treated southern yellow pine or redwood for safety, while providing an imaginative, healthy play environment.

The designs are flexible and expandable. All parts are pre-cut, predrilled and finished, for ease of construction and maintenance.

Circle No. 202 on Reader Inquiry Card

Correction

In the January issue of WEEDS TREES & TURF, a news release appeared on page 6 about a new engine that Briggs & Stratton was to have introduced at the Golf Course Superintendents Association of America trade show.

However, the company's advertising agency (The Cramer-Krasselt Co.) says that, "due to an unanticipated pushback in production, there exists some ambiguity as to when the product will actually be available."

Olathe MODEL 12 P.T.O. CHIPPER

PORTABLE
DEPENDABLE
ECONOMICAL

- Less than ½ the price of equal capacity chippers
- Fits most tractors from 25 to 100 H.P.
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- Patented safety throw-out —stops feed instantly
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Popular 3-pt Hitch Model or Pull Type Trailer Option

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Industrial Airport, KS 66031
800-255-6438
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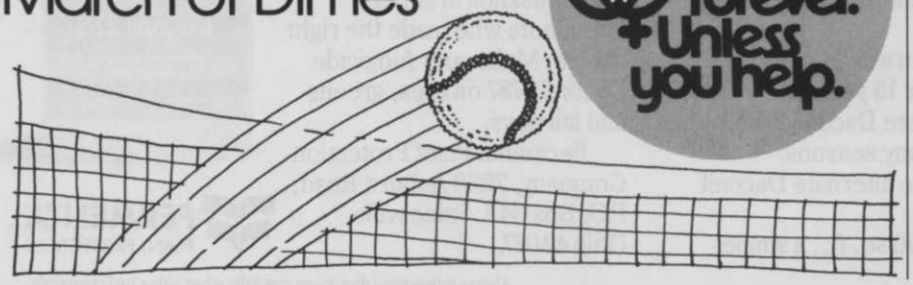
Circle No. 154 on Reader Inquiry Card

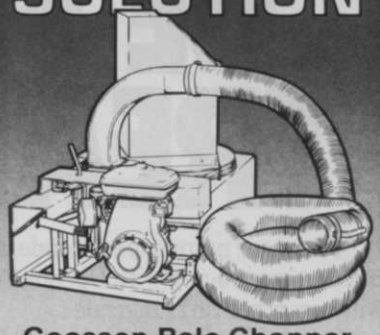
It's your return that counts!

March of Dimes



Birth defects are forever. Unless you help.

THE MULCHING SOLUTION



Goossen Bale Chopper

In the field since 1982, the Goossen Bale Chopper is a proven landscaping machine. One or two operators lay down an even layer of mulch on newly seeded lawns of any size (the Bale Chopper is easy to maneuver in even the smallest residential applications). The even coverage, WITHOUT tearing and spreading bales by hand, means better moisture retention, better germination.

Complete with interchangeable hose and directional spout available on both self-powered (gas engine) and tractor-mounted PTO models.

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In Nebraska, (402) 228-4226
We can save you time and money!

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Circle No. 182 on Reader Inquiry Card

Fine Fescue for Sure

Maintaining a fairway can be a real headache. Fine fescues give you less to worry about...

Keeping your course looking great and your budget balanced can be a real headache. Oregon grown fine fescues can make your job just a bit easier. When used on tees and fairways, fine fescues offer shade tolerance with low fertilizer and water requirements. Fine fescues mix well with ryegrass and bluegrass without getting pushy, and they have a tight, upright growth habit. Oregon fine fescues germinate and perform better than imported varieties.

Where do you *find* fine fescues? On tees, fairways, roughs, parks, home lawns, industrial campuses and anywhere a fine textured, shade tolerant turf is desired.

Where do you *get* fine fescue? Ask your distributor for *Oregon grown* fine fescue *for sure!*

For a series of eight tech sheets on Oregon grown Chewings and creeping red fescues, call or write

OREGON FINE FESCUE COMMISSION

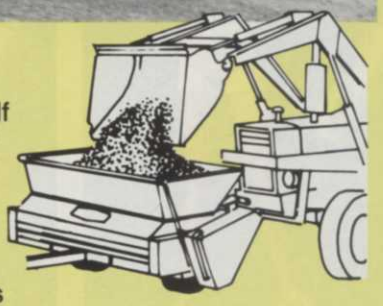
2140 Turner Road SE
Salem, OR 97302
503/585-1157

Circle No. 155 on Reader Inquiry Card

TURFCO **METE-R-MATIC II**

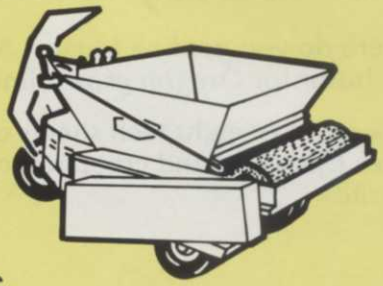
TOW-TYPE TOP DRESSER

Top dressing **levels existing turf** on athletic fields while stimulating growth and improving soil conditions. Repetitive top dressing **fills in the low spots** and also promotes the **decomposition of thatch.**



- Top dress 18 golf greens in under 6 hours
- Top dress an athletic field in under 2 hours
- 18.3 cubic feet hopper capacity
- Spreading width of 60"
- Top dress at up to 8 miles/hour
- Ground driven no engine to maintain

TURFCO also manufactures self-propelled and truckster-mounted **METE-R-MATIC TOP DRESSERS**



TURFCO MFG., INC.
3456 N. Washington Ave.
Minneapolis, MN 55412-2688

Ph. 612/588-0741
Telex 5106013762

TURFCO

Circle No. 178 on Reader Inquiry Card

EVENTS

February

American Society of Golf Course Architects Annual Meeting, Feb. 15-18, Royal Lahaina Hotel, Maui, Hawaii. Contact: ASGCA, 221 North La Salle St., Chicago, IL 60601. (312) 372-7090.

Southwest Athletic Turf Clinic & Trade Show, Feb. 18-19, Will Rogers Memorial Complex, Fort Worth, Tex. Contact: Harold Clark, Athletic Turf Association, P.O. Box 1114, Hurst, TX 76053. (817) 282-4965.

Iowa Turfgrass Conference, Feb. 18-20, Des Moines Convention Center, Des Moines, Iowa. Contact: Dr. Michael Agnew, 105 Horticulture Building, Iowa State University, Ames, IA 50011. (515) 294-0027.

Wisconsin Landscape Federation Annual Conference, Feb. 23-24, Interlaken Resort, Lake Geneva, Wisc. Contact: Joe Phillips or Doris Raffaele, 5645 S. 108th St., Hales Corners, WI 53130. (414) 529-4705.

Western Pennsylvania Turf Conference and Trade Show, Feb. 24-26, Pittsburgh Expo Mart, Marriott Hotel, Monroeville, Penn. Contact: Christine King, Pennsylvania Turfgrass Council, P.O. Box 417, Bellefonte, PA 16823. (814) 355-8010.

Continued on page 126

National

76" Heavy Duty Triplex Reel Mower

- **High Quality of Cut** with National's 6 bladed reels
- **Dependability/Durability** with National's rugged design
- **Affordability** with National's price

Features
- 11 hp I/C Engine
- 6 mph transport speed
- heavy duty rollers
- long life bed knives

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Circle No. 150 on Reader Inquiry Card

A Special Get-Acquainted Herbicide Offer:

Buy 25 Pounds of Dyclomec® LANDSCAPING HERBICIDE Get a Spred-Rite® G FREE.

An efficient combination for season-long vegetation control. *In landscaping,* turn problem areas into beauty spots. *In Nurseries,* help young trees mature up to 25% faster.

Spread Dyclomec herbicide granules in any precise area where you want season-long weed-and-grass control without injury to deep-rooted woody ornamentals.

Form a perfect circle around a tree trunk; draw an exact line along a fence; turn the earth in ornamental shrub beds into beauty spots; keep competition away from young trees; it's all so easy with Dyclomec.

Moisture carries the active ingredient into the upper layer of soil, where it stays fixed with virtually no lateral movement. A vapor barrier is formed in which no seeds can germinate, and through which no sprout can penetrate.

Proper granule distribution is important, and the patented Acme® Spred-Rite® G is the perfect tool.

Do You Have Any Questions About Using Dyclomec?

Dyclomec is an exceptionally versatile material that can be used in so many different situations. If you have any questions, we invite you to call Glenn Munger, the product manager for Dyclomec at PBI/Gordon.

Glenn is generally recognized as the leading authority on Dyclomec in the United States, and his help is yours for the asking. Call anytime during office hours.

Toll-free: 1-800-821-7925
In Missouri: 1-800-892-7281

FREE SPRED-RITE® G When You Buy Dyclomec.

To the Customer: When you present this coupon to your participating PBI/Gordon distributor and, at the same time, buy a 25-lb. trial-size package of Dyclomec 4G (enough to treat ¼ acre), your distributor will give you an Acme® Spred-Rite® G FREE. Limit one to a customer. Offer expires May 1, 1987.

To the Distributor: Please accumulate and submit these coupons for redemption to PBI/Gordon Corporation no later than July 1, 1987.

pbi/gordon corporation
1217 West 12th Street
P.O. Box 4090
Kansas City, MO 64101

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Circle No. 157 on Reader Inquiry Card

The ProSource

Is your business worth $2.90 a week?

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To find out more, call (404) 977-5222 or fill in the coupon and mail it today!

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Send me more information on what PLCAA can do for my business.

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Clip and mail to:
Professional Lawn Care Association of America
1225 Johnson Ferry Rd. NE, Suite B-220, Marietta, GA 30067

Bergen Landscape 10th Annual Trade Show, Feb. 25, The Stadium Club, Giants Stadium NY. Contact: Bergen Landscape, 630 Valley Court, Westwood, N.J. 07675. (201) 664-5228 or (201) 327-0820.

Erosion Control: You're Gambling Without It, Feb. 26-27, John Ascuaga's Nugget Sparks, Nev. Contact: Executive Director, P.O. Box 195, Pinole, CA 94564-0195. (415) 223-2134.

Colorado Landscape Industry Conference & Trade Show, Feb. 26-27, The Regency Hotel, Denver, Col. Contact: C. Diane Matt, 3895 Upham St., Suite 150, Suite 150, Wheat Ridge, CO 80033. (303) 425-4862.

March

Midwest Regional Turf Conference, March 2-4, Stewart Center, Purdue University, West Lafayette, Ind. Contact: Dr. Clark Throssell, 2-443 Lilly Hall, Purdue University, West Lafayette, IN 47907. (317) 494-4785.

Landscape Exposition, March 3-5, O'Hare Exposition Center, Rosemont, Ill. Contact: Dawn Pratt, HBJ Expositions & Conferences, P.O. Box 5555, 50 Washington St., Norwalk, CT 06854. (800) 243-2815.

Wisconsin Arborist Association Annual Meeting, March 9-10, Olympia Village Conference Center, Oconomowoc, Wisc. Contact: Richard Haas, (414) 258-3000.

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CORE AERATOR

- Self Propelled
- Quiet Running
- Easy Maneuvering
- Straight Up-and-Down Motion for Better Penetration
- All Roller Bearings – Case-Hardened Shafts
- Low Maintenance

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400 - 24,000 Sq. Ft./Hr.
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Danville Express makes chemical application safe, fast and easy. This cost efficient no-drift roller applies liquid herbicides or fertilizers even and precise without harmful overspray.

Danville Express Offers:
30" Hand Model
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4, 5 or 6 ft. Heavy Duty Pull Models

Call now or write for free literature.

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Circle No. 116 on Reader Inquiry Card

GET THE FEELING THEY KNOW SOMETHING YOU DON'T?

They do. It's their job to know things first and then pass that information on to you fast. Things like new turf management techniques, effective methods of insect and weed control, what really works... and what won't.

LOOK FAMILIAR?

They should. You've seen them often at turf shows, seminars, conventions—wherever industry news is in the making. They're the editorial and sales management team of WEEDS TREES & TURF. Please meet (sitting from left to right) Heide Aungst, Jerry Roche, Ken Kuhajda, (standing from left to right) Dick Gore, Bob Mierow, Ron Kempner, Jon Miducki and Bob Earley.

THERE'S NO GRASS GROWING UNDER THEIR FEET.

They apologize for not always being in when you call, but great stories are found in the field, not in the office. These pros know that the only way to really cover the green industry is to get out and be a part of it. From turf test plots in Oregon to the corridors of our nation's capital, they're following the leads, surveying the markets, and interviewing the landscape professionals who make our industry grow. Then, they use their years of experience to pull it all together, analyze and present it to you in a crisp, easy-to-read and easy-to-use style. That way, you have the information you need to do your job better, faster and more effectively.

The next time you want to know something about the green industry, give them a call. If you can't reach them at the office, don't worry. **They'll reach you** in the pages of WEEDS TREES & TURF.

WEEDS TREES & TURF

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BOX NUMBER REPLIES: Mail box number replies to: WEEDS TREES & TURF, Classified Ad Department, 1 East First St., Duluth, MN 55802. Please include box number in address.

BUSINESS OPPORTUNITIES

Excellent business opportunity in northwest Montana, near Glacier National Park. Owners desiring to retire from rapidly expanding bluegrass sod farm. High return on investment; high potential for future growth. Negotiable terms with owner financing. Send letter of interest to: Sod Farm, P.O. Box 2401, Kalispell, MT 59903, or call 406-755-6655. TF

WANT TO BUY OR SELL a golf course? Exclusively golf course transactions and appraisals. Ask for our catalog. McKay Golf and Country Club Properties, 15485 N. East Street, Lansing, Michigan 48906. Phone (517) 484-7726. TF

HELP WANTED

LANDSCAPE CONSTRUCTION FOREMAN: Opportunity to supervise landscape construction crews for aggressive landscape design/build and maintenance company. Horticultural degree and experience preferred. Send resume and salary requirements to Scott Byron & Co., 191 E. Deerpath Rd., Ste. 103, Lake Forest, IL 60045, 312-234-3334. 3/87

Landscape Architect/Designer—individual with education and experience to manage landscape-construction division. Excellent opportunity for qualified applicant. Send resume to Best Lawns, Post Office Box 251, Medinah, IL 60157 or phone 312-543-0043, Michael Cavaliere. 2/87

LANDSCAPE MAINTENANCE FOREMAN: Individual to supervise a crew of 4. Must be bilingual with degree or comparable experience. Mechanical ability desirable. Willingness to work hard and produce can lead to advancement. Reply with resume and salary history to P.O. Box 6062, Richardson, Texas 75080. 2/87

Large Midwestern Landscape Contractor working with Fortune 500 clients seeking aggressive manager with experience in all aspects of commercial landscape maintenance. Excellent supervisory skills and ability to communicate with clients is required. This is a year round position with excellent benefits Salary commensurate with experience. Send resume to Vidosh Bros. Inc., 36199 Mound Road, Sterling Heights, MI 48310-4798. Attention: Personnel Department. 2/87

HELP WANTED - LANDSCAPE SUPERVISOR, MAINTENANCE SUPERVISOR: Dynamic, successful landscape firm, ($2 Million/INC 500) seeks experience, highly motivated, people-oriented supervisors for Landscape and Maintenance divisions. Excellent growth opportunity with a talented management team (Design/Build/Maintain/Irrigation). Salary, vehicle, incentive, benefits. Send resume and salary history to **SUBURBAN LANDSCAPE ASSOCIATES, P.O. BOX 2342, DAVENPORT, IOWA 52809** Attn: David Hasenmiller. 2/87

Maintenance foreman to do quality commercial maintenance. Knowledge of turf and ornamentals and at least 3 years experience. Good salary and benefits. Reply to Country Greenery, Box 638, Pittstown, NJ 08867. 3/87

HORTICULTURIST: Washington University is seeking to develop and implement a significant program for upgrade of campus landscape aesthetics. Physical Facilities Department desires motivated person with a B.S. in Horticulture, M.S. preferred, to manage and guide program and has at least 6 years experience in the care and planting of trees, shrubs, perennials, annuals and turf grass. Must have knowledge of landscape design and construction, plant materials, management and experience in pruning, fertilizing and pest control. Historically significant campus of 165 acres located in suburban St. Louis, including athletic fields and football stadium. Salary commensurate with qualifications. Application deadline: March 1, 1987. Those interested submit resume to: Personnel Office, WASHINGTON UNIVERSITY, Campus Box 1184, One Brookings Drive, St. Louis, MO 63130. Affirmative Action/Equal Opportunity Employer. 2/87

LANDSCAPE MAINTENANCE FOREMAN: Opportunity to supervise landscape maintenance crews for aggressive landscape design/build and maintenance company. Horticultural degree and experience preferred. Send resume and salary requirements to Scott Byron & Co., 191 E. Deerpath Rd., Ste. 103, Lake Forest, IL 60045, 312-234-3334. 3/87

LANDSCAPE FOREMAN—Rapidly growing midsouth landscape contractor seeks well motivated individual. No less than 3 years experience. Reinhold Landscape, 5345 Holmes Road, Memphis, TN 38118. 2/87

WANTED: Assistant Branch Manager needed for a well established lawn care company in the Winston-Salem area. Only people with lawn care experience and/or a turf grass degree need to apply. Please send resume and references to Lawn Medic of the Triad, P.O. Box 769, Kernersville, NC 27284. 2/87

LANDSCAPE MAINTENANCE OPERATIONS MANAGER—Rapidly growing midsouth landscape contractor seeks a quality minded, self-motivated individual to supervise its Landscape Maintenance Department. Necessary skills: horticultural knowledge and detail, production, scheduling and communication with clients. Salary and benefits commensurate with ability and experience. Reinhold Landscape, 5345 Holmes Road, Memphis, TN 38118. 2/87

HELP WANTED: Land Estimator - KT Enterprises, Inc. is expanding its landscape installation department & growing firm for the right person with exceptional sales ability. Must be experienced in take-offs and costing. Progressive design/build firm doing business in Washington, D.C. Metro area. Excellent salary, benefits & growth potential. Call John Warren 703-922-8540. 2/87

MANAGEMENT: Mid-Atlantic multi-branch established lawn care firm seeks branch manager. Position available 1-1-87 for aggressive, qualified applicant with proven record of success. Experience in operations, administration, field and office a must. Send full resume, salary, benefits and incentive requirements to WTT Box 408. 2/87

COMMERCIAL LAWN TREE AND SHRUB CARE BRANCH MANAGER NEEDED. Largest commercial company in Washington D.C. area expanding its application division. Looking for person experienced in management of lawn and ornamental applications. Experience in both not a must, but desired. Full benefits, salary profit sharing, etc. Please send resume to WTT Box 410. 2/87

Estimator/Salesperson: A diversified, growing, suburban Cleveland landscape firm has an opening for a landscape Estimator/Salesperson for commercial projects. Applicants must have experience in commerical landscape contracting and a college degree in a related field, ability to deal with landscape architects and general contractors needed. We are looking for a highly motivated individual with a proven record to help us grow. If you are qualified for this career opportunity, please send resume, work and salary history to Chagrin Valley Landscaping, P.O. Box 391002, Solon, OH 44139. 2/87

Sales and Service person needed in Virginia Beach area. Only experienced, licensed applicators with excellent customer service skills will be considered. Send resume and references to: Lawn Medic of Tidewater, P.O. Box 1786, Chesapeake, VA 23320. TF

MANAGEMENT: Ever-Green Lawns Corporation, a division of the multi-national Hawley Group, Ltd. is looking for experienced lawn and tree care professionals. Please respond in writing only to Richard D. Niemann, Corporate Recruiter, Ever-Green Lawns Corp., 1390 Charlestown Industrial Drive, St. Charles, MO 63303. TF

Working managers experienced in all phases of lawn servicing looking for opportunity to grow. We offer lots of work, advancement opportunities to the right people, good to excellent compensation and security. Must be willing to relocate to the East coast (Washington D.C. area) or if you're the right person we will consider you for a new office from Virginia Beach to Northern New Jersey. Call or write to: Ron Miller, Super Lawns, P.O. Box 34278 Bethesda, MD 20817, 301-365-4740. 3/87

WINNERS ONLY: If you love the lawn care business, and are still looking for your personal security and comfort levels, send us your resume. Your experience should be in all phases of lawn care, management, customer sales and service. We are expanding our operations and will offer the right individual a unique once in a lifetime opportunity. When you prove your abilities, we'll guarantee your success. Send your confidential resume to: P.O. Box 5677, Rockville, MD 20855. 3/87

MANAGERS NEEDED FOR LAWN CARE BRANCHES. One of the Northwest leaders in lawn care and tree care is looking for experienced successful managers to run a lawn care branch with tree service in the West. Salaries range from $29,000 to $40,000 per year. Send resume to WTT Box 415. TF

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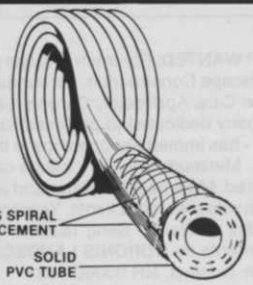
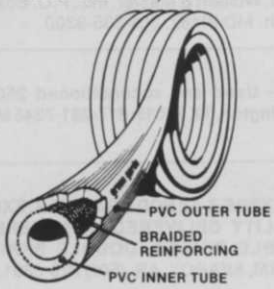
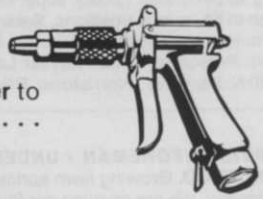
High Performance Spray Team

NEW! 4-SPIRAL WHITE HOSE . . . a unique 600 PSI hose designed to withstand the rigors of the spray industry. **Solid PVC Tube** with **two layers of criss-cross spiral reinforcement . . . nothing like it anywhere!** Available in 3/8″ and 1/2″ ID, 300 and 400 foot continuous lengths.

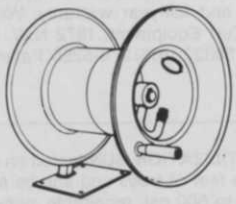




BRAIDED NEON HOSE . . . the best quality hose money can buy. **Avoid downtime and chemical spills . . . use the hose preferred by top operators all over North America.** 800 PSI working pressure; available in 1/4″, 3/8″, 1/2″, 5/8″ and 3/4″ ID; 300, 400 and 600 foot continuous lengths. Some odd lengths, in various ID's, also available at special prices.

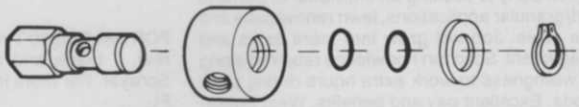


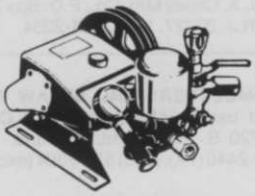
JD9-C Hi-Performance SPRAY GUN . . . used by just about everybody. A rugged, dependable, versatile performer in any spray application. Fully adjustable from fog to long distance stream. **Five tips** available to fit your needs . . . **adapter** to attach the many fine Spraying Systems wands and spray tips. **Also available . . . JD9-CT with gauge port and plug,** allows you to easily calibrate your sprayer.



Heavy-Duty ALUMINUM HOSE REELS . . . unique single pedestal design makes mounting anywhere a breeze. Constructed of marine alloy aluminum -- eliminates corrosion problems. **Attractive . . . and popularly priced!** Available in four sizes, with capacity from one to four hundred feet of 1/2″ hose. MARK IV model accepts 250 feet of 3/4″ hose.

REPLACEMENT HOSE REEL SWIVELS . . . tested at over 3000 PSI dynamic service pressure! The same heavy-duty units supplied on our hose reel, now available separately. Fits Hannay and other reels with no modification. Extended service **VITON** o-rings means longer wear; and, when replacement *does* become necessary, it can be done, in the field, with an inexpensive kit, in less than a minute. Three sizes: 1/2″, 3/4″, 1″.





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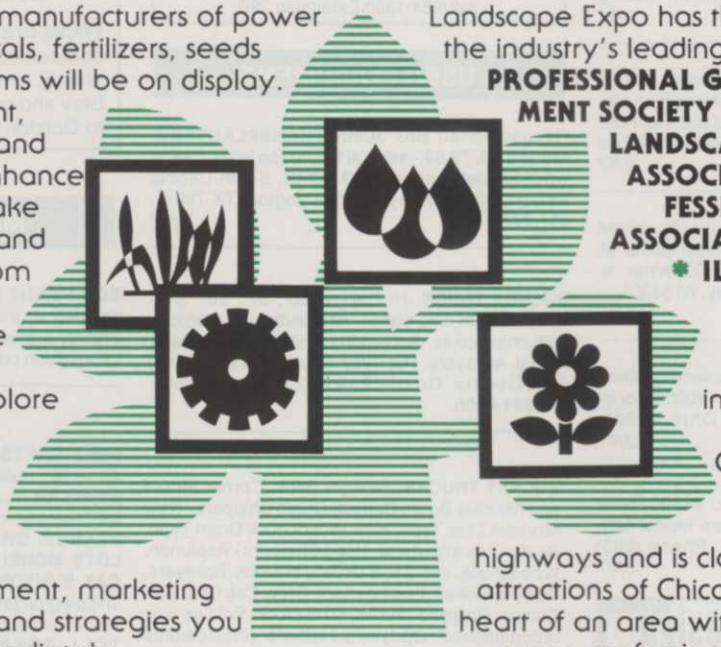

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Changing times

As I type this into my trusty computer terminal, the office is devoid of people. It's December 28th, 1986, the Sunday between Christmas and New Year's. The new year is fast approaching. Even though 1987 will be a toddler by the time you read this, this might still be a good time to reflect on 1986 and make some projections about 1987.

One lesson we all might learn from 1986 is that, sometimes, you have to change with the times.

The staff of WEEDS TREES & TURF plans to celebrate the magazine's 25th anniversary year with some exciting new changes, the biggest of which we'll be officially announcing in April. In a dynamic industry like what we call the "green industry," we've learned that you can't stagnate and continue to be successful.

We expect that attitude to serve the magazine's staff well over the next few years as we change with the industry. It might serve your business, as well.

You see, by the end of 1987, we'll probably know exactly where we stand with respect to our use of pesticides.

Lt. George Prior's death on a golf course will be ancient history.

Golf course superintendents will have a season of controlling insects without diazinon under their belt.

The results, if any, of ChemLawn's posting policy will be resolved.

The dust will have settled from the sale of major chemical and equipment companies.

I sort of feel that the readers of WEEDS TREES & TURF let 1986 sneak up on them. They really weren't prepared—especially for the bad publicity they received.

Here's hoping that our readers change with the times, that they learn from 1986, that they adjust.

And that they prosper in 1987.

Jerry Roche

Jerry Roche, editor

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The **new** self propelled Lawnmaker that **"does it all"**. Whenever there is a need for seeding, overseeding and fertilizing it has the combination you need to do the job. Its unique design lets it follow the ground contours and plant seeds evenly...for better results. The powered blades and guides place the seed into adjustable depth slits that are 2½ in. apart, offset wheels then cover the seed, for the best possible germination conditions. It overseeds and seeds a 22 in. wide strip, with calibrated seed flow, and the 5 hp engine and heavy duty drive give excellent traction in a variety of conditions. The adjustable operator handle folds away for easy storage and transport. Available as; an overseeder; seeder with fertilizer hopper; or overseeder and fertilizer; the **new** Brouwer seeder, is ideal for Parks, Golf Courses, School boards, Municipalities, Landscapers, Rental outlets, and Lawncare people.

SEEDING

The exact placement of seed, in the right quantity, gives you the perfect seed bed for better germination and finer quality lawns.

OVERSEED

Better results because the seed flow is carefully calibrated, the grooves cut and the seed covered.

OPTIONS

The choice is yours. The seeder can be bought with or without the overseeder unit or the fertilizer box. These can be added afterwards when needed.

and for those larger areas...

The Lawnmaker 67 seeder, is a larger capacity seeder/fertilizer ruggedly built...to last. It has adjustable teeth for loosening up hard soil and a levelling bar for uneven areas. There are stainless steel hopper bottoms and control slides, free floating suspension on two open mesh rollers, easy to reach controls, and it can seed up to 2 acres (0.8 ha.) per hour. Designed to give outstanding performance.

BROUWER
TURF EQUIPMENT LIMITED
An Outboard Marine Corporation Company

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Create a Colorful Difference

WITH Pinto BRAND WILD FLOWER MIX . . .

the colorful and decorative answer for low maintenance landscape areas.

Multi-colored blends of annuals and perennials like Chicory, Scarlet Flax, Bachelor's Button, Baby's Breath and Painted Daisy. A blend that reseeds itself for lasting beauty year after year.

Pinto is ideal for any landscape — parks, roadsides, golf course roughs, home gardens, industrial and landfill sites. And perfect for areas where you don't have to mow.

Available either as 100% wild flowers, or mixed with a fescue as a Meadow Mix to aid soil stability.

It's custom blended in a Northern or Southern mix. So wherever you live, your Pinto order will be perfectly adapted for your climate. It will make this year the start of many colorful years to come.

Pinto Wild Flower Mix: the easy, low-maintenance way to naturalize your surroundings.

For more information or to place your Pinto order, call:

- **Marie Pompei or John Morrissey, Lofts (800) 526-3890**
- **Joe O'Donnell, Sunbelt Seeds, Inc. (404) 448-9932**
- **Don White (912) 382-4268**
- **John Sours or Grant Jurgensen of Jacklin Seed Company (800) 635-8726**

LOFTS

Lofts Inc.
Bound Brook, New Jersey 08805

Jacklin Seed Company
Post Falls, ID 83854

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